LAST MINUTE
OIL NEWS SECTION

Fast News by Teletype from Four News Bureaus

National Petroleum News

News from All Branches of Oil Industry Everywhere

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Tailor Gasoline To Suit Seasons ASTM Proposes

N. P. N. News Bureau

NEW YORK, April 26.—Tentative specifications for gasoline, providing for automatic geographical and seasonal variations, for the general use of purchasing agencies in making contract purchases extending over a period of time, have just been issued by the American Society for Testing Materials.

Three types of gasoline are covered in the specifications; namely, for "normal" use, for use where greater volatility is desired and for use where a relatively non-volatile fuel is desired. However, the society points out, the specifications are not intended to define gasoline nor to include all types for all commercial uses.

Committee D-2, on Petroleum Products and Lubricants, of the A.S.T.M., proposes the new specifications, officially known as D439-37T, after a considerable period of development. This committee, made up of representatives of both the oil companies and of companies which are large users of petroleum products, has drafted the testing methods now universally used for petroleum products.

Basis of Purchasing

The basis for purchasing under the proposed specifications providing for geographical and seasonal variations, calls for the purchasing agency to state the minimum octane number as agreed upon with the seller; specify the volatility, as denoted by the three types, and indicate the season and locality in which the fuel is to be used.

The specifications, as given for the three types, provide three vapor pressures and three 10 per cent distillation points for each type, the three covering the desired characteristics in these regards for winter, for spring and fall, and for summer respectively.

Reference to a schedule of geographical and seasonal variations appended to the proposed specifications, shows, by states, which of the three variations of vapor pressure and 10 per cent distillation points are

(*Continued on page* 19)

Editor of the 'World's Worst Paper' Quits

WICHITA, Kans., April 27.—Myers Gross, manager of sales for The Vickers Petroleum Co., has resigned and will move to Florida as soon as his successor has been selected. He will be associated with R. E. Cummer & Co. in the future.

Gross has been in refinery sales work for 25 years. He is affectionately known by thousands of jobbers as Pete Roleum, editor of the GUSHERVILLE NEWS, the "World's Worst Newspaper."

The GUSHERVILLE NEWS has been published by Gross off and on, as the spirit moved him, for the amusement of Vickers' jobbers. In the News "Pete" commented on current affairs in the oil industry and in the life of the country generally. His viewpoint was always that of amusement at the foibles of the big shots in the industry and in public life pointing out the real effect of their policies.

Gross' writings have been republished by the oil trade press many times.

No Need For Federal Oil Control, Ickes Testifies

By Teletype
N. P. N. News Bureau
By A. M. PETTY

WASHINGTON, April 27. — Secretary of Interior Harold S. Ickes today flatly declared there is no need for federal oil control so long as the states continue—and he expects that they will—to do the "fine job" they are doing now in the way of conserving our petroleum resources.

Ickes expressed this view several times during his testimony on the Connally "hot" oil law, before the oil sub-committee of the House Interstate Commerce Committee, headed by Congressman William P. Cole, of Maryland.

Before this same sub-committee in 1934, Ickes declared that federal control of oil production, right down to the individual well, was the only solution.

Reminded of his previous testimony by members of the Cole Committee, Ickes smiled and admitted that he had not then anticipated the states could do as well as they are now in controlling oil production.

"If the oil states can handle the problem, by state laws and compacts, then they should be allowed to do so," said Ickes. "If the time ever comes when the states can't, then we can well consider whether or not the federal government should step in to conserve our petroleum resources.

"But there is no indication now that that time will ever come," Ickes added.

Ickes Praises Texas

Both in his prepared statement and in his answers to the committee's questions, Ickes praised highly Texas and the other oil-producing states for their successful efforts at oil and gas conservation.

"There is no need now for any federal oil legislation other than the Connally law," Ickes declared emphatically.

Further indication of Ickes' changed attitude is the fact, disclosed today, that he has written the governors of Arkansas and Michigan urging enactment of state oil and gas conservation laws similar to those of Texas and other producing states.

It was evident that Ickes now believes the solution of the oil problem is through state laws and compacts, with the federal government co-operating to the extent of prohibiting interstate shipment of oil produced in violation of state law, such as the Connally law provides.

To the objections of Congressman Samuel B. Pettengill, of Indiana, that the Connally law, due to expire June 16, should be extended but not made permanent, Ickes replied:

"The Connally law is the minimum of federal co-operation with the states. If any additional federal legislation should prove necessary, it will include the Connally law. So, we might as well make it permanent and build upon it—if further legislation is ever needed."

Members of the committee sought Ickes' views as to why, if conservation is desirable, oil imports should not be encour-

Method Presented Refiners For Evaluating Reforming

By Telegraph
By ALLEN S. JAMES

HOT SPRINGS, Ark., April 26.—The advantage of reforming the optimum proportion of straight-run naphtha, in meeting the new requirements for octane number of motor fuels, may be as much as $500,000 per year or more, based on a reforming unit throughput of 5000 barrels of naphtha per day, Wright W. Gary, of the M. W. Kellogg Co., stated today before the 25th annual meeting of the Western Petroleum Refiners' Association in Hot Springs. This estimate is calculated from a most exhaustive study on the economics of the problem, in which every variable factor involved in reforming naphtha, and in using tetra ethyl lead to obtain the required octane rating, was evaluated.

The proportion of naphtha produced from crude which can be economically reformed to obtain the desired octane rating increases with the maximum octane number to be attained, the octane number characteristics of naphtha used, and a number of other factors were considered. These factors have been evaluated and assembled into a mathematical equation, from which there may be calculated the proportion of naphtha which should be reformed and the percentage which should be leaded to produce the desired octane number of motor fuel.

These valuations are based a large amount of data on Mid-Continent gasolines in commercial practice and results are typical for Mid-Continent operation.

In making 73 octane number fuel from average Mid-Continent naphtha, determined by the C. R. F. motor method of

(*Continued on page* 16)

aged, instead of being curbed by taxes. But Ickes declined to give his opinion, saying that it was a matter for Congress.

Likewise, Ickes sidestepped an opinion on the amendment, proposed by the National Oil Marketers' Association, providing for disintegration of the major oil companies; he said it was not in his province to comment on that subject.

Questions by some members of the sub-committee indicate they are well acquainted with the objections which independent marketers raised against the Connally law at the Senate hearings.

When their questions were too specific for Ickes to answer, he suggested that they wait and ask Dr. John W. Frey, former member of the Petroleum Administrative Board and now associate director of the Petroleum Conservation Division. Frey is preparing a statement answering the marketers' objections, and he will present it later to the sub-committee, Ickes disclosed.

Labor Amendment

An amendment, sponsored by H. C. Fremming, president of the International Oil Field, Gas Well and Refinery Workers Union, a C.I.O. affiliate, was presented by Congressman Lyle H. Boren, of Oklahoma. It provides that no one "engaged in the drilling for, production of, or transportation of crude petroleum in interstate commerce" shall work their employes more than 36 hours a week or pay them less than $5 for a six-hour day. The hearing on the Connally law before the House committee is expected to last several days more.

Among those expected to testify favorably are: Senator Tom Connally, Texas; Col. E. O. Thompson, Texas Railroad Commission; Russell B. Brown, Independent Petroleum Association of America; Wilmer R. Schuh, president of the National Association of Petroleum Retailers; and J. D. Collett, Mid-Continent Oil & Gas Association. Paul E. Hadlick, counsel for the National Oil Marketers' Association, heads the list of marketer witnesses to appear against the bill. Representatives of the Dixie Interstate and Independent oil jobbers' associations in Kentucky, Missouri, Virginia, Pennsylvania, New York, Iowa, and other states are on hand and expected to testify.

RICHMOND, VA., April 26.—The annual meeting and banquet of the Virginia Oil Men's Ass'n. will be held May 21 at Hotel Patrick Henry, Roanoke, Va., according to A. L. Tenser, secretary. Directors will meet the night of May 20.

2 Unions, in Parleys With Oil Firms, Form Alliance

N. P. N. News Bureau
By S. D. CLARK

CLEVELAND, April 27.—An agreement providing "mutual aid and assistance whenever necessary" was reached last night between executive boards of the Petroleum Truck Drivers and Helpers Union and the Gasoline Station Operators Union. Both unions are American Federation of Labor affiliates. Cleveland locals of both unions, which are American Federation of Labor Affiliates, are now negotiating new wage contracts with major oil companies here.

The alliance is subject to approval by the Teamsters' Joint Council No. 41, which meets May 17. Such approval was regarded as certain, however.

This morning, 12 hours after the above agreement was reached, Anthony J. Pozun, secretary and business agent for Local No. 545 of the petroleum drivers, informed 10 major oil companies that a compromise proposal submitted to him was not acceptable.

The compromise was drawn by Ralph A. Lind, director of the regional labor relations board here. Members of Pozun's union will meet April 30 to accept or reject the "final offer" of the companies. The present memoranda, which serves as an agreement, expires May 1. The companies negotiating with Pozun are the Canfield Oil Co., Socony-Vacuum Oil Co., Inc., Cities Service Oil Co., Sinclair Refining Co., The Texas Distributing Co., Shell Petroleum Corp., the Pocahontas Oil Corp., National Refining Co., Commercial Oil Co. (of Cleveland), and the Allied Oil Co., Inc. The Gulf Refining Co. is conducting individual negotiations with Pozun.

Provisions of Compromise

"The compromise agreement does not meet our demands," Pozun commented, "but we are meeting again today." The compromise embodied a moderate wage increase, oil company officials revealed, but did not include the union demand for a closed shop nor the union request that all drivers in communities immediately surrounding Cleveland be paid the Cleveland scale. Oil concerns wish to establish a differential in smaller communities than in Cleveland, which represents top wages, shortest hours in Ohio. At present drivers of four years experience or more are paid $142.50 a month for 40-hour weeks here.

Meanwhile, negotiations between Local No. 40 of the union at Mansfield, O., and four companies, some of which are also parties at Cleveland, continued. The companies are the Canfield Oil Co., National Refining Co., Indian Refining Co. and Cities Service Oil Co.

The companies seek to establish a differential for towns of 30,000 or less in Ohio, while the union wishes to have the Canton, O., (105,000) terms the basic scale. Wages at present in Canton are $130 a month top on a 48-hour week.

It was emphasized, however, that while populations was a factor in determining wage and working conditions, that other factors are also of importance. Local competitive conditions, living expenses, oil markets and general level of wages in other industries are also considered.

Attendants to Negotiate

Negotiations between Cleveland Local No. 18378 of the Gasoline Station Operators Union, and Ohio oil companies were postponed pending outcome of the parleys with the petroleum truck drivers union.

Six major companies which signed an agreement with the Local 18378 last year were reported to have informed Phil Hannah, secretary and business agent, that all of their stations were now leased, that the attendant lessees were therefore not employes, so that the companies had no reason to negotiate concerning them. These companies were reported as the National Refining Co., Canfield Oil Co., Texas Distributing Co., Shell Petroleum Corp. and Gulf Refining Co.

Companies which were reported as ready to negotiate with Hannah are Socony-Vacuum Oil Co., Inc., Pocahontas Oil Corp., Cities Service Oil Co., Sinclair Refining Co., Goodyear Tire Service, Inc., Firestone Tire & Rubber Co., Sears Roebuck & Co., Goodrich Silvertown Stores and a number of trackside stations and independent operators.

Toledo C.I.O.

Major companies operating distributing systems in Toledo, O., formed a committee, but had not yet named a chairman, to deal "across the board", with Local 346 of the International Association of Oil Well, Gas & Refinery Workers of America, the first C. I. O. union to show strength among oil workers in the middle west. The companies are Sinclair Refining Co., Shell Petroleum Corp., Pure Oil Co. and the National Refining Co. Gulf Refining Co. is negotiating separately. Since many of the representatives of the three companies are also involved in the Cleveland negotiations with the truck drivers, Toledo parleys have been postponed until the agreement here is out of the way.

C.I.O. Cleveland Charter

Individual negotiations between two majors operating refineries in Toledo were said by J. A. White, secretary, of Local 346, to be in progress, however. They are the Gulf Refining Co. and the Pure Oil Co., Sun Oil Co. and Standard Oil Co. of Ohio, which also operate refineries in Toledo, were not presented with demands.

Harvey C. Fremming, president of the International Association of Oil Field, Gas Well & Refinery Workers of America, said that his organization granted a charter a few days ago to a local in Cleveland. It will be known as Local No. 395. It was granted on application of employes of the Standard Oil Co. of Ohio, he said. The applicants are workers in the company's No. 1 refinery here. Paul Gregovich was named secretary.

Dubbs-National Suit Is Settled

CLEVELAND, April 27.—National Refining Co. has settled its patent litigation with Universal Oil Products Co. and has signed a license contract for use of the Dubbs cracking process at National refineries at Coffeyville, Kans., and Findlay, O. The agreement was signed April 21 by W. H. Lamprecht, president of National, and H. J. Halle, president of Universal.

Trial of the cracking patent suit was to have begun at Wichita, Kans., on April 28. This suit has been withdrawn by Universal. National had a counter claim against Universal which also has been dismissed as a result of the agreement.

Dubbs clean circulation and Egloff selective cracking patents were involved in the National suit. These are the same patents which were involved in the Root Refining Co. suit which Universal won. National has been operating Winkler-Koch units at its two refineries.

Universal engineers now are surveying National's refineries to determine what changes in operating methods may be made under Universal patents.

Financial Aid To Employe Groups Is Discontinued

N. P. N. News Bureau

CLEVELAND, April 27.—Four large oil companies have announced to their employes that they have been forced to discontinue financial support to workers' organizations, as a result of the decision on the Wagner Act by the U. S. Supreme Court.

Employes are being told, however, that the necessary discontinuance of company financial support to such groups because of law, need not necessarily mean the dissolution of the groups entirely, and that the employes are free to continue such organizations under their own management if they so desire.

Such were the messages of the Standard Oil Companies of New Jersey, Indiana, and Ohio, to their employes.

The Indiana company, whose Employe Representation Plan has been in effect since 1919, informed its employes, in a letter dated April 24, that the company would be prohibited from continuing to financially support the plan, but that, if the employes saw fit to continue the organization, the company would be glad to recognize it as the sole bargaining agency, provided it represented a majority vote.

Similarly, Standard Oil Co. of Ohio sent a written notice to members of the Sohio Council Plan, announcing the necessity of withdrawing its financial support, but expressing its willingness to have the group continue under its own management.

Workers Favor Plan

An unofficial source within the Standard of Ohio organization reports that the sentiment of the men seems to be to continue the plan on their own.

In the southwest, announcement by the Humble Oil & Refining Co., that it has abandoned its joint conference plan of management employe relations spurred C.I.O. and A. F. of L. organizers to renewed activity in the attempt to enlist employes of this company in their ranks. "These decisions in general uphold the act and would appear to make it applicable to at least a part of our business," said the Humble's statement.

"Under certain rulings of the National Labor Relations Board, the joint conference plan as used in the employer-employe relationship in some other companies has been held to be objectionable. This plan as used in the relations between the Humble company and its employes during almost the entire life of the company has been an effective means of settling controversial questions. The elected representatives under this plan have acted as the collective bargaining agency for our employes during that entire period.

"However, in view of the criticism directed at the joint conference plan as used with some other companies, and in order to avoid any hazard to the happy relations that exist between this company and its employes by continuing a plan for collective bargaining that may be criticized, we prefer to forego further use of the joint conference plan."

Form Own Federation

Following the company's announcement, Baytown refinery employes, on April 26, formed their own federation and were to ballot at once to see whether employes favored this federation, which is an outgrowth of the Security League, as the agency through which management-employe relations would be maintained. The vote probably will be completed April 27 and 28.

Lessee Stations Closed by Strike

By Teletype

SOUTH BEND, April 27. — A strike of station operators which closed fifteen stations and two bulk plants of Sinclair Refining Co. in South Bend, Ind., entered its eleventh day today. The bulk plants are being picketed by striking station operators.

Striking lessees of company-owned stations are reported to be members of the South Bend local of the Gasoline Service Station Operators Union, an A. F. of L. affiliate.

Denies Jurisdiction

Company officials here explained that the trouble grew out of a change in company rental policy. Sinclair takes the position that rental arrangements between itself and its lessees are purely a matter of "landlord and tenant" relationship, and not subject to union bargaining.

Many believe this is the opening blast in the operator's union fight to dictate policies of suppliers, where they affect union members. It is understood that about 87 per cent of all lessee stations in the South Bend area are connected with the South Bend local. No other major company leased stations have been affected as yet, it was understood.

Hopes Agency Can Raise Oil Prices

N. P. N. News Bureau

LOS ANGELES, April 26. — Jack J. Doyle, independent California Oil man, was elected president of the Oil Producers Agency of California at the annual election April 21. He succeeds R. A. Broomfield, executive vice president of Barnsdall Oil Co.

Other new officers include C. C. Spicer, president of Republic Petroleum Co.; Laurence C. Kelly, vice president of Thos. Kelly & Sons, and William J. Schultz, president Crescent Petroleum Co., as vice presidents; and Frank Travers, South Basin Oil Co. as secretary treasurer.

Retiring President Broomfield in a report on the year's stewardship stressed the initiative taken by the agency in restoring the voluntary crude oil curtailment program to an operating basis after it had reached a chaotic situation. Natural result of this restoration of order was the advance in posted crude schedule February 26, 1936, and March 7, 1936.

Discusses Prices

On the subject of present prices, Broomfield said:

"The problem as to the present price of petroleum has given us great concern for the past three months. During that period your officers and committees have made continuous efforts to obtain an increase in price.

"However, the board has, through its years of experience, gained a working insight into some of the problems confronting other units of the industry, and notwithstanding our natural impatience at the delay in adjusting our price index in line with the index of other commodities, the members of the board have avoided a contentious attitude.

"As in the past, we have sought to bring about proper conditions for a better price, rather than take action which might precipitate difficulties."

ICC Rules on Trucking Petroleum Products

N. P. N. News Bureau

WASHINGTON, April 26. — Trucking of petroleum products to consuming points from bulk storage within the same state is not interstate commerce, even though they originate in refineries outside the state, in the opinion of joint board No. 36 set up under the Motor Carrier Act.

The board recommended that the Interstate Commerce Commission dismiss the application of Edward Bausch, Leigh, Nebr., for a permit to truck refined petroleum products from Superior, Nebr., to Leigh, on the ground that ICC has no jurisdiction.

In its report on hearings, the board pointed out that the products are transported to Superior in the pipeline of Champlin Oil Co., and are their property in this interstate movement. However, since there is no specific consignment of them further than the storage tanks at Superior the board held:

"It follows that the operation for which authority is herein sought is clearly one in intrastate commerce only, and not subject to the provisions of the (Motor Carrier) Act."

Skelly to Build New Treating Plant

TULSA, April 27.—The Skelly Oil Co. will build a 14,400-barrel copper sweeting treating plant for refined products at its El Dorado, Kans., refinery it was announced today by Emby Kaye, vice president in charge of refining.

Several units of the new treating plant now are being designed and construction will be begun as soon as possible. The entire plant will be in operation within six months, he said, and will be the largest outside installation of the process.

Skelly is licensed to install the new plant by the Petroleum Research Engineering Co., owners of the copper sweetening process.

57 Tankers Use Panama Canal in March

N. P. N. News Bureau

WASHINGTON, April 26.—Thirty-two laden tankers passed through the Panama Canal from the Pacific to Atlantic in March, according to canal records. The cargoes totaled 370,678 tons.

All but four carried petroleum and its products. These carried, respectively, whale oil from South America to England, sardine oil from China to Holland, molasses from Hawaii to England, and cocoanut oil from the Philippines to New York.

By trade routes, tanker traffic through the canal for the month was heaviest between Pacific South American ports and Europe.

East-to-west tanker traffic in March totaled 25 vessels, only five of them laden.

Of the 57 tankers passing through the canal in both directions, 18 were British, 14 American, 12 Norwegian, five Panamanian, four Dutch, two Danish, one French and one German.

Weight of Under 6.6 Lbs. Is Used By U.S. Agencies

N. P. N. News Bureau

WASHINGTON, April 26.—At least four federal agencies bear out Tankar Gas, Inc., of Minneapolis, in its contention that gasoline weighs less than the 6.6 pounds per gallon estimate upon which the Interstate Commerce Commission allows railways to base their freight charges for its transportation.

Tankar has filed with ICC a protest against the estimated weight used by the rails, claiming that the actual weight of shipments received by it has averaged about 5.7 pounds per gallon. It asks the ICC to launch an investigation, with a view to fixing new charges and setting reparations for "overcharges" during the past three years.

Since the complaint was filed, naming the Class I railways of the country as respondents, several other oil companies have been granted leave to intervene in the case, although no date has been set by the commission for beginning of the investigation.

The ICC itself, or at least one of its members, is responsible for circulation of an estimated weight of 5.95 pounds per gallon. The estimate was used by the Co-ordinator of Transportation in a report on "Comparative Labor Standards in Transportation," to concert figures for barrels transported by pipelines to ton-miles, for the purpose of comparison with rail traffic.

Eastman ICC Member

The 5.95 estimate was used, according to the report, for "refined oil (mainly gasoline)." Joseph B. Eastman, Co-ordinator of Transportation, over whose signature the report was made, is a member of the ICC.

Another government agency which considers the weight of gasoline to be less than 6.6 pounds per gallon is the U. S. Bureau of Standards, generally regarded as the last word in accuracy of measurement.

In that bureau's publication, "National Standard Petroleum Oil Tables," gasoline of 60° Baume, which classification the bureau says includes the majority of commercial motor gasoline, is reported to weigh 6.151 pounds per gallon. Gasoline of 62° Baume, which grade is often reached by commercial gasoline, the bureau says, weighs but 6.087 pounds per gallon.

Bureau of Mines estimates for the weight of ordinary motor gasoline correspond closely with these figures. For conversion of pounds to gallons, or vice versa, the Bureau of Mines uses a factor of 6.15 pounds per gallon.

Federal Barge Lines, operated by the Inland Waterways Corporation, a government organization, furnishes towing service for barging gasoline on the Mississippi river and tributary streams.

Charges for this towing service are based on a certificate of gallonage furnished by the shipper, converted into weight, using a factor of 6.1 to 6.3 pounds per gallon based on the gravity, according to officials of the barge line.

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Hearing Planned In Tankar Case

N. P. N. News Bureau

WASHINGTON, April 26.—Hearings before an Interstate Commerce Commission examiner on the complaint of Tankar Gas, Inc., of Minneapolis, against the estimated weight of 6.6 pounds per gallon used by railroads in fixing freight charges on gasoline will be held in Minneapolis, probably before midsummer, it was learned today.

At the same time, the commission announced it has granted petitions of six more refiners to intervene in the case. Several weeks ago petitions of eight other refiners to intervene were granted, and indications are that the Minneapolis hearing will offer a cross-section of the industry's attitude on the long-used gasoline weight estimate.

Two State Position

Only two of the new intervenors indicated the stand they will take on the reduction in estimated weight sought by Tankar—Cities Service Oil Co., and Empire Oil & Refining Co.—both of whom ask that they be given the "same relief and remedy" as Tankar in the event the ICC finds the 6.6 estimate excessive and rates based upon it unlawful, as Tankar charges.

This is the same stand as that taken by Shell Petroleum Corp. in a petition for intervention granted earlier this month.

Others granted the right to intervene and become parties to the case, in which virtually all Class I railroads are named defendants, are Arkansas Fuel Oil Co., Col-Tex Refining Co., Anderson & Prichard Refining Corp., and Lion Oil & Refining Co., all of whose petitions were granted today, and the Kansas Oil Traffic Committee, whose petition was granted at the same time as Shell's.

Refiners' Group

The Kansas Oil Traffic Committee is a group of refiners, including Derby Oil Co., El Dorado Refining Co., Kanotex Refining Co., National Refining Co., Skelly Oil Co., White Eagle Division of Socony-Vacuum Oil Co., and Vickers Petroleum Co. These refiners will take their contentions up individually, it has been learned.

Besides Cities Service, Empire and Shell, no other intervenors have indicated whether they will stand with or against Tankar's endeavor to have the estimated weight revised downward. Their petitions have merely said any change would "vitally affect" them, or that they are "greatly interested," or wanted to "protect" their interests.

So far no petitions from other oil marketers supporting Tankar's protest against the 6.6 pounds estimated weight have shown up at the ICC, although the weight of gasoline has been a much-discussed topic at meetings of jobbers associations for many months.

Zehrung Is New Pennzoil Head

OIL CITY, April 26. — Winfield S. Zehrung was elected president of the Pennzoil Co. April 23 by the board of directors to succeed Robert S. King who resigned, effective April 1. Mr. Zehrung was promoted from the vice presidency.

Maurice A. Brewster, treasurer, succeeded to the office of vice president and will hold both offices. J. E. Vandeventer was elected assistant secretary.

Officers who were re-elected are Charles L. Suhr, chairman of the board; R. A. Browne, secretary; and W. J. Dempsey, assistant treasurer. Mr. Dempsey recently succeeded Albert E. Walz.

Mr. Zehrung joined Pennzoil in 1919. He was successively chemist, chief chemist, assistant refinery superintendent, manager of industrial sales, sales manager, general manager, and vice president in charge of sales. He also has been elected a member of the board of directors.

A native of Montpelier, Ind., Mr. Zehrung graduated from Allegheny College and was with the U. S. army air corps before entering the employ of Penzoil.

Mr. Brewster has been with Pennzoil since 1909. He has been treasurer and a member of the board of directors for several years.

Proposed Bill May Tax Crude In Pennsylvania

HARRISBURG, Pa., April 26.—A five per cent severance tax on crude petroleum, natural gas and iron ore produced in Pennsylvania is proposed in a bill introduced in the general assembly here by Representative John Yourishin of Hazleton.

Yourishin's interest in such a bill was said to be traceable to his active connection with the United Mine Workers, which has urged passage of a bill to place a state tax on fuel oil, now pending before the ways and means committee.

The tax proposed would be based on total gross average market value, and the bill would require that all companies engaged in production of iron ore, petroleum and natural gas file reports semi-annually with the state revenue department showing quantities produced.

Proceeds from the tax, according to the bill, would go toward salaries of public school teachers.

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Proposes Tax

By Telegraph

HARRISBURG, Pa., April 27.—Pennsylvania's house ways and means committee today reported a bill to levy a two-cent-a-gallon tax on fuel oil used in this state.

Half the revenue from the tax would be turned over to the "General State Authority," one-fourth of the motor fund, and one-fourth toward the support of state institutions. The general state Authority is an agency created in 1933 to obtain funds for construction of state institutions.

The bill would exempt fuel oil used in the manufacture of gasoline. It is estimated the tax on fuel oil would produce $10,000,000 annually in revenue.

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Orders Probe

HARRISBURG, Pa., April 26.—An investigation into natural gas rates in Pennsylvania, as compared with those of nearby states—Ohio, West Virginia, Kentucky, Maryland and New York—has been ordered by the Pennsylvania Public Utility Commission.

Officials of the Commission said they hope to determine "just and equitable" rates for Pennsylvania consumers, and indicated these may necessitate a revision downward of present rates.

Court Removes Oath of Secrecy In Madison Case

MADISON, Wis., April 26.—Two days of argument by defense attorneys here last week in the government's oil cases cleared up nearly all disputed points which remained to be disposed of before the actual trial starts Sept. 27. The outcome of the hearing April 20, 21 and 22 was one important concession to the defense, and several minor bits of information.

The biggest concession concerned the oath of secrecy taken by witnesses who have appeared before the two grand juries here. Since Jan. 7, Col. William J. Donovan, chief of counsel for most of the defendants, has sought to have Judge Patrick T. Stone remove this oath, on the ground that it has hampered the defense in preparing its case, but the court had steadfastly opposed it.

Just as arguments were concluded on April 21 and attorneys were preparing to leave the courtroom, Donovan resumed the attack.

"Now about that oath of secrecy," he said.

"The time it was up before," Judge Stone replied, "the government was willing to release the witnesses, but I had some doubts."

"It is very important to us, and we would like to get the witnesses released if it is at all possible," Donovan said.

"Our position is the same as it always was," commented Hammond E. Chaffetz, of counsel for the government. "We are willing to waive the oath, subject to the practice in this district. We don't want to do anything that would set a bad precedent for your honor in future cases in this district."

"Well, if that's your view, we'll waive," Judge Stone said.

Particulars Asked

Much of the time of the court at this hearing was taken up with a reading by H. H. Thomas, Madison, who is associated with Donovan, of some 50 questions regarding the indictment, on which he demanded a bill of particulars to aid the defense in preparing its case. In each instance he asked that the government give time and place, names of persons attending, and copies of what was written or summaries of what was said regarding the alleged conspiracy agreements.

To all these questions Chaffetz and John Henry Lewin, also of counsel for the government, replied, "the indictment is perfectly clear on all these points." They did, however, answer a few questions directly, to the evident satisfaction of defense attorneys.

Both government attorneys broke into heated speech, however, when Thomas, asking for complete details of the alleged buying programs mentioned in the indictments, said: "This question of buying is one of the most important that the defendants must face, but the indictment is very vague as to just what was bought."

"At the removal hearing for Carlisle (O. H. Carlisle of the Gulf Oil Corp., at Houston) the defense furnished invoices showing the exact time, prices and quantities of the buying," Lewin said. "You couldn't get a better illustration (referring to Thomas' question) of a fishing expedition for government evidence."

Who Are The "Others"

One question Thomas asked the government to answer concerned the identity of the "other persons" with whom the defendants are alleged to have conspired.

"Have we got to go and comb the whole list of officers of these companies?" he asked. 'Of course we're presumed to know what we did, but the question is what the government claims we did. In a civil case the court would give us this information unquestionably. In a criminal case it is even more important."

Lewin replied that the "others" were unknown to the grand jury, and hence presumably unknown to the government attorneys.

One bit of information came to defense attorneys when Counsel Thomas asked whether the indictment charged there was a conspiracy agreement on the part of the independent refiners from whom the major companies are alleged to have bought gasoline at artificially high prices.

"We can't answer that," Chaffetz replied. "If the truth must be known, there's a dispute on that question as to whether they did make an agreement."

At one point, as Thomas continued the monotonous reading of the list of similar questions, Judge Stone asked: "Do we need to read all these?"

"If we are to claim 'surprise,' we have not only the right but the duty to demand these questions," Thomas replied indicating that the defense will probably make much of the claim at the trial that it was not given sufficient information on the charges to prepare an adequate case.

"Well, aren't all these questions in your original motion?" Judge Stone asked.

"Yes, but that brief does not form part of the record, and we want these questions in the record," Thomas replied—and resumed his reading.

Indictment Selected

Chaffetz made formal announcement to the court that the government will proceed at the trial on the so-called "Standard of Indiana" indictment returned Dec. 22, which charges conspiracy to artificially raise retail gasoline prices. Defense attorneys had already been privately informed of the government choice between the two similar indictments.

An indication that the government may grant immunity to two defendants and call them as government witnesses was given by Chaffetz when Donovan asked whether the government would set a date for hearing of arguments on special demurrers filed on behalf of Keith Fanshier, petroleum editor of the Chicago Journal of Commerce, and Bernard L. Majewski, Chicago, vice president in charge of sales of the Deep Rock Oil Co.

"I can't say just yet," Chaffetz replied. "The government may call them as witnesses, and grant them immunity."

Donovan and Chaffetz finally agreed that the arguments would be heard not later than July 1, if the government decided not to call Fanshier and Majewski as its own witnesses.

Harry F. Payer, counsel for *Platt's Oilgram*, NATIONAL PETROLEUM NEWS, and Warren C. Platt, president of both trade publications, was cut short in arguing his demand for a special bill of particulars for the trade journal defendants. Judge Stone asked him to file a brief setting forth the specific nformation he desired.

With a definite date for the trial set, defense attorneys have formed a committee on housing, to care for the defendants and their families during the three months the trial is expected to consume. Buell F. Jones, Chicago, a Standard of Indiana attorney, is chairman of the committee which is seeking at least 30 furnished residences to be occupied by the defendants and their families.

"Gulf Official Decision"

(*From Dallas News, April* 20, 1937)

"With considerable fanfare of publicity the other day, the Government announced indictments by a Wisconsin Federal jury of a whole drove of major oil company officials on charges of violating the anti-trust laws. On the theory that names are news, the publicity has its prosecuting value. The public is often as much impressed by indictment as by conviction. When the whole history of our Government and corporate relationships is written, there will be several sombre chapters on occasions when blameless individuals or industrial enterprises have been put to high expense to defend unjust charges, sometimes brought merely to make political reputations.

"The ultimate disposition of the Wisconsin cases must be left to courts and juries. In refusing to order O. H. Carlisle of the Gulf Company to surrender himself to the courts in Wisconsin, United States Commissioner W. F. Carrothers of Houston pointed out the other day that it is absurd to identify an individual with a technical question. On the evidence presented in Mr. Carlisle's defense, the Commissioner held the charges as to him baseless.

"The Government can yet set up its case in a higher court but the Commissioner stressed one important point. Even the acts complained of, he asserted, formed a part of the NRA program, in force at the time for which the charge of anti-trust law violation is brought. The procedure, he notes, was blessed by Franklin Roosevelt and authorized by Congress.

"NRA is gone now. But if Commissioner Carrothers interprets the Wisconsin oil cases aright, industry that endeavored to co-operate in 1934 may now be called to account for co-operation. Under such a set of circumstances, no conviction or penalty would be likely but the expense of defending fatuous litigation is a penalty in itself."

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Higher Oil Prices

The vicious circle of higher wages and higher costs, resulting in higher priced crude oil and then higher prices for gasoline and all petroleum products is on its way.

Governor Marland, of Oklahoma, has focused attention upon it by saying that, unless there is a higher price for Oklahoma crude oil, he will demand a crude oil severance tax, regardless of the price. That is, today the crude oil produced pays a tax of five per cent of its sales price. If the price is advanced the five per cent will bring more revenue to the state, but if it is not advanced then the governor says he will ask for a tax of so many cents a barrel, regardless of price.

Governor Marland also says that the state of Oklahoma is not going to sit idly by and let other and non oil producing states use petroleum products to collect heavy taxes from the consuming public without Oklahoma getting its share. And you cannot much blame an oil producing state for that view, no matter how obnoxious taxes are. However, an oil producing state must also realize that it is liable to kill the goose that lays the golden egg by too heavy taxes on the raw product, for companies can buy and produce more oil from states that tax crude oil less or where field operating costs per barrel are less.

Out in California producers are complaining at the increased costs of steel and other materials and wages and demanding an increase in price. All through the oil industry one hears such demands and all through the oil industry the two leading national labor organizations are making demands for higher and higher wages and shorter hours.

There can be no doubt that all this will ultimately push up the price of gasoline to the consumer and also the prices of all other petroleum products. Letting up on the conservation and proration effort in the flush oil states will not reduce these costs. To undertake to offset them in that way would be robbing the immediate future.

From every point of view, the oil industry will shortly have to be getting more money from its products and there is only one place where it can do that and that is the ultimate consumer. So far, as the figures show, the oil industry has done probably a better job at absorbing increased costs than any other industry.

Two Notable Addresses

Two notable papers—and we insist on the word "notable"—were presented at the recent meeting of the National Petroleum Association at Cleveland, and every oil man should read them. They contain new and well stated points that every oil man needs to use in the political discussion of the day on regulation and control of the oil industry, even to its prices and the specification of its products.

President J. Howard Pew, of the Sun Oil Co. presented a paper on "What Price Gasoline." He gives new ideas and much interesting data on gasoline prices. The variation in gasoline prices within the borders of many states has stirred the governors and legislators to investigate and propose drastic legislation. Mr. Pew points to the much greater variation in prices over the country, and even in a single state, on the most important foods and yet no one is even discussing them, let alone investigating them. Mr. Pew's paper was published in full in last week's NATIONAL PETROLEUM NEWS but extra copies of his paper may be had by anyone by writing Mr. Pew at Philadelphia.

The other important paper was by Fayette B. Dow, general counsel of the National Petroleum Association, on "The Value to the Public of the Oil Industry as a Free Enterprise." Mr. Dow used to be an attorney with the Interstate Commerce Commission and he draws on his expert knowledge of the railroad field, among others, to show how regulation held back the development of railroad transportation until the roads were wrecked by the new methods of transportation by water and by truck. He shows by official figures how railroad rates have held high while gasoline has improved in quality and dropped more than half in price, thus aiding in developing the trucking industry which helped to wreck the railroads.

The deadening effect on mind and hand of government regulation of the railroads is thus described by Mr. Dow:

"During the 50 years of the life of the Interstate Commerce Commission the railroads have been under a public control which, commencing with a relatively simple effort to do away with discriminations and rebates, has been broadened by repeated amendments, until in scope and extent it covers, in one degree or another, a wide range of problems which, in unregulated enterprises, management must face and decide for itself. Regulation of railroads, state and federal, has gone on so long and is so deeply imbedded in railroading itself that their officers, most of whom have always been in the service, seem to have developed different habits of mind than those of business men in free enterprises.

"So many important questions must be submitted to public authorities for determination; so many decisions in fact must be made for them, that, to many observers, railroad officials, with a few conspicuous exceptions, have seemed to show less of that degree of initiative and enterprise which characterizes so many executives in private business. What some one has called the "regulated mentality" has seemed strangely inert in situations where management in free enterprises would surely have acted more promptly and more effectively."

Comment upon Mr. Dow's paper was contained also in the April 21st issue of NATIONAL PETROLEUM NEWS. Copies of his full address may be obtained by writing him at the headquarters of the National Petroleum Association, Munsey Bldg., Washington.

Every oil man who likes to, and wants to, run his own business should read these papers carefully and keep their arguments and facts fresh in mind for use in discussion with those outside of the oil industry. The best public relations work for any industry can be done by those in that industry, who know it and who believe in it and want to preserve its freedom.

Mid-Continent Skyline

By LAWRENCE E. SMITH, N. P. N. Tulsa News Bureau

TULSA, April 24

There was a little trouble in the Texas senate over extension of the Interstate Compact. A small bloc was positively against it and on April 22 there was a majority of only one in the vote on an amendment that would have the governor withdraw from the compact when another compacting state was producing more than its fair share of the national market.

But the compact bill finally got through the senate, having previously passed the house and, if Congress approves, the compact will go on another two years from next September. Oklahoma, Kansas, New Mexico, Colorado, other charter members, have renewed their pledges.

The compact commission has been very quiet of late. The first quarter meeting of 1937 was skipped on request of Chairman Ernest O. Thompson, member of the Texas Railroad Commission. He wanted to wait, he said, until the U. S. Bureau of Mines completed its survey of quantity and quality of stored crude oil in the U. S. The next meeting is scheduled to be held in Santa Fe, N. M., June 11.

* * *

Coastal Drilling Debate

Senator Nye, of North Dakota, got in on the row over drilling along coastal waters when he introduced a bill that would settle it all very nicely by making all submerged coastal lands the property of the U. S. navy.

That, of course, would not suit Texas and Louisiana where the big quarrel is now on. Texas has leased great amounts of submerged lands to oil companies and has collected the bonuses. The uproar began when it was announced that the Humble Oil & Refining Co. was going to drill an offshore location, about a mile east of Galveston Island. Fishermen, oystermen, beach resort business men and others protested. An association was formed with Henry W. Flagg, Galveston, as president. He has been visiting other towns along the coast and asking support.

The Texas legislature doesn't know what to do about it. The state executed the leases to high bidders and the money realized is important. A subcommittee of the house made an inspection trip into Louisiana, found that the Lake Barre and Caillon Island fields, both inundated, had been developed and operated cleanly and without pollution of surrounding waters.

Chief federal angle to the affair is that of navigation. The War Department recently held a hearing at Galveston to determine whether the proposed Humble well would interfere with maritime traffic. Its decision is expected to be announced soon.

* * *

Ancient Ghost Walks

It was more than a year ago that the state of Texas started some prosecutions concerning alleged excessive production in the Conroe field. Now the federals have gone after the same people on charges of having violated the Connally act. Grand jury indictments were returned against 10 persons and six companies. A former employe of the Texas Railroad Commission was included. The companies are all small ones.

* * *

Move to Bless Stored Oil

In the East Texas field there are some three million barrels of oil which the railroad commission has frozen in storage. Part of it is in open pits, part in steel storage. It is of all kinds, fuel oil which has weathered for years, crude oil and a small amount of light products. The commission refuses to clear it for shipment.

Rep. W. E. Pope, Corpus Christi, put a bill into the Texas house a few days ago that would remove the taint from this oil provided the owners paid to the state the production tax and monetary penalties. A similar bill is in the senate.

Under the state law providing for confiscation and sale of oil produced in excess of allowable production, about 2,200,000 barrels of the East Texas stored oil is involved in suits filed recently by the attorney general. Rep. Pope himself is named as an owner of some of the oil.

* * *

And What, Pray Tell, Shall Sit-Downers Wear?

In the last hours of the 1937 session of the Kansas legislature, Senator Cron put in a resolution which he said related to the general welfare. After only one whereas he plunged boldly into the subject matter, which was to compel lobbyists to wear uniforms or insignia that would indicate plainly the industry or profession they served. Here are some samples given in the resolution:

"Be it further resolved, that 'railroaders' shall wear overalls, carry an oil can and a switch lantern; 'public utility' men shall carry a water faucet in one hand and a hand-telephone set in the other; 'insurance' men shall wear a rubber coat, high boots and a fireman's bonnet; 'educators' shall wear a cap and gown and a coonskin coat; 'bankers' shall wear old-gold uniforms and one black eye; 'druggists' shall wear a white uniform and carry a tray of lettuce sandwiches and soft drinks; 'healing art' practitioners shall wear an interne's uniform, carry a stethoscope and a bottle of smelling salts; 'liquor' dealers shall wear a large white apron, with hoops, resembling a beer keg, and carry liquor at least 15 years old."

Senator Cron made no provision for oil men. The D. J. boys who procured the Madison indictment probably would suggest a dark lantern and a kit of burglar's tools.

* * *

West Texas Competition

Entrance of Sinclair Prairie Oil Marketing Co. into the West Texas and southeast New Mexico area as a buyer of crude oil followed the acquisition by the parent Consolidated Oil Corp. of a 25 per cent interest in the Texas New Mexico Pipe Line Co., recently organized to purchase and operate the trunk line system built several years ago by The Texas Pipe Line Co.

The Sinclair company posted prices, effective April 20, on Ward and Winkler counties, Texas, and Lea county, New Mexico. Prices conform to the schedule of The Texas Co.

Tide Water and Empire companies are also partners in the new line and there will be some switching around of connections because of the three companies now having pipeline space.

Services Held For 3 Oil Men

TULSA, April 26.—O. T. Dawson, 57, vice president of the National Supply Co., died April 19 in Kansas City after a long illness. He had been in the supply business since he was 18 years old, starting at Sistersville, W. Va., and had been with National since 1905. His widow survives him. Funeral services were held in Tulsa, April 21.

* * *

Ralph M. Moon, 43, head of the Moon Oil Marketing Co. and widely known among petroleum marketers, died April 21 at his home in Tulsa. He was for some years associated with the Imperial Refining Co., Fort Worth and Tulsa, and with Imperial Oil Marketing Co. His widow and one son and two daughters survive him.

* * *

TULSA—Dr. O. A. Lambert, 71, died at his home in Lakeland, Fla., April 23. He was a resident of Okmulgee from 1907 until 1936. Once mayor of Marietta, O., he entered the oil producing business in Oklahoma and in 1909 built the first refinery in Okmulgee.

Chester O. Swain Dies

NEW YORK, April 26.—Chester O. Swain, vice-president and director of the Standard Oil Co. (N. J.) died April 22, after several months illness. He was 60 years old. He was a member of the executive committee of the company and had been general counsel from 1915 until 1935, when he became a vice-president. He was made a director in 1927.

Mr. Swain graduated from Harvard law school in 1904. He joined the legal department of the New Jersey Standard in 1906 and was active in company affairs during and following the time of the dissolution of the old Standard Oil Co. He also was active in the settlement of problems between the oil companies operating in Mexico and the Mexican government.

ST. LOUIS, April 26.—J. B. Saunders, formerly with W. B. Hassett, Imperial Refineries, Inc., here for the past 16 years, resigned April 1 to organize Triangle Refineries, with headquarters at 408 Pine St., St. Louis.

Method Presented to Refiners

(*Continued from page 9*)

test, the author finds that about 50 per cent of heavy naphtha should be reformed for maximum economy; if 73 octane number, determined by the new tentative method, between 55 and 60 per cent of naphtha should be reformed.

Correspondingly, about 40 per cent should be reformed to reach 70 octane number by the present C. F. R. motor method, while to reach 73 octane number by the C. F. R. research method requires that about 60 per cent of naphtha be reformed for optimum economy. These percentages are calculated on an assumed value of raw naphtha of about five cents per gallon, and the proportions change with changes in the value of the naphtha.

Determination of the yield of reformed naphtha from raw naphtha which is most economical for the refiner to obtain is another factor of major importance in deciding whether not to reform, or how much to reform, as well as the octane number desired in the reformed naphtha, Gary showed.

Of Practical Value

By comprehensive charts he showed that the lowest octane number raw naphtha should be reformed, as this gives greatest octane number improvement per unit of reforming loss and reduces leading cost in the greatest degree. Also, he showed that an economic balance must be struck between the loss sustained in reforming to any given octane number compared to greater yields obtained at the expense of some reduction in the octane number which may be made up by leading.

From this equation and these evaluated variables, the author believes that a refiner operating on Mid-Continent crude may develop the solution of his problem of how much naphtha to reform, and how much lead to use for maximum refining cost economy.

In view of the fact that the removal of salt and water from crude oil is becoming an increasingly important problem for many Mid-Continent refiners, the technical session of the western refiners' convention April 26 was opened with a discussion of the subject, "Dehydration and Desalting."

Groundwork for the general discussion was laid by E. R. Jones, of the Skelly Oil Co., El Dorado, Kan., who outlined the chemical and physical methods now being used, and by G. B. Hanson, of the Petroleum Rectifying Co., Houston, who explained the electrical process.

Jones answered in his prepared paper the question, "Why need the salt be removed from the crude?" by giving four reasons. The first one, he said, was the fact that corrosion trouble is traced directly back to the salt, and that this problem seemingly has increased with the increased acidizing of wells.

The second reason for salt removal was because its presence in crude being processed caused the plugging of exchanger tubes and condenser sections. The corrosion of still tubes was the third reason, while the fourth reason for salt removal was because its presence in road oils and asphalt often prevented the materials from meeting necessary solubility and organic content specifications.

In studying the problem, Jones said that he had found that the salt content can be reduced by allowing long time standing of the crude. He pointed out, however, that not all refiners have sufficient crude storage capacity for such a treatment, and that even so, there would be a "pay day" some day on the tank bottoms.

Less Salt in Summer

Jones also reported finding the salt content of crude varies with the season and that there is less salt during the warm summer months than during the cold winter months.

One of the most popular ways of removing salt from crude, Jones reported, was by use of heat, which caused a lowering of the surface tension of the oil, which in turn permitted the water particles to coalesce. The heat also lowers the viscosity of the oil and causes a greater difference in specific gravity between the oil and brine, thus allowing better and faster separation, he brought out.

Since this method does not bring about complete dehydration, Jones said that addition of fresh water to the incoming crude and continued heating will give desired results within certain limits.

The method of introducing soda ash in order to neutralize the free acid also was outlined by Jones.

The paper by Hanson was an elaboration on one he read at the first of the series of regional technical meetings the association sponsored last fall. (NATIONAL PETROLEUM NEWS, Oct. 7, 1936, pages 20 and 22).

"The results obtained in operating the various installations are remarkably uniform," Hanson said, "regardless of the type of oil being handled. Capacities per unit range between 1500 and 2000 barrels of oil per day, and the reduction of salt has averaged over 90 per cent.

"Some of the effects on refinery operation thus far noted are, improvement in asphalt quality, longer and more uniform operating periods, elimination of corrosion, and saving in fuel.

"The chief advantages of the electric method are its efficiency, simplicity and reliability. The removal of the salts will be 90 per cent or better on nearly every type of oil.

Topped crude is considerably harder to de-salt than is straight crude, it was brought out in the discussion of Jones' paper. In desalting an optimum of water to be added must be determined. The more water, the more completely salt is brought into solution, up to a certain value for water percentage. Too much water increases the cost of pumping and mixing and demands increased equipment capacity. The theory that some salt occurs in crystalline form in crudes, surrounded by layer of paraffin wax, appears to be generally accepted by most technologists at the meeting.

Desalting has largely eliminated corrosion, especially in topping stills, Hanson stated in the discussion, and has improved solubility of the asphalt, and, in one case, the ductility of the asphalt was apparently improved by desalting. A temperature of 190 Fahr. has solved the solution problem for salt in crudes so far studied, Hanson says.

* * *

President Recounts Early Days Of Western Refiners' Ass'n.

By Telegraph

HOT SPRINGS, Ark., April 27. — Arkansas' Governor Carl E. Bailey opened the general session of the Western Petroleum Refiners' Association Silver Anniversary convention here today.

"Twenty-five years ago this coming June a small crowd of refiners operating in Kansas and Oklahoma met in a hotel in Kansas City, to try to do collectively what they had failed to do individually."

With that introductory statement, the association's president, Clyde M. Boggs, president of the Kanotex Refining Co., Arkansas City, Kan., reviewed the activities of the organization since its formation that June day in 1912, at the first general session today.

The first official recorded meeting of the association was at Kansas City on Dec. 18, 1912, with 15 refiners present. Of this group, only three are in the refining industry today, Mr. Boggs stated. They are J. S. Cosden, L. L. Marcell and W. D. Richardson.

"In the early formative years and for some time thereafter," President Boggs said, "the problems of manufacture and freight rates occupied the attention of the members.

"In those years unequalized freight rates were handicapping the Mid-Continent refiner who happened to be located unfavorably. The matter became of such importance that a traffic branch of the association was established in Chicago with another department in the home office in Kansas City.

Stating that "from its inception the Western Petroleum Refiners Association has been to a great extent a scientific organization," Mr. Boggs told of the activities carried on with reference to improvement in quality of product, safety in operations, fire prevention, study of manufacturing costs, specifications and freight rates.

"One of the most important achievements of the W.P.R.A.", President Boggs said, "was the adoption of its specifications for gasoline with respect to octane brackets, vapor pressure and gum content. . . In an effort to be of service to the federal government and the various states the association last year adopted specifications defining non-taxable tractor fuel. The Federal Internal Revenue Department and several states have adopted the essential parts of these specifications for the determination of whether a tractor fuel is or is not taxable."

Following President Boggs' address, Fayette B. Dow, Washington counsel for the association discussed "Recent Legislation, Enacted and Proposed, Affecting Business Practices." He devoted virtually all his paper to the discussion of the Patman act.

"Whatever may be the reason for the enactment of the Patman act", Mr. Dow said, "it is on the statute books and, so long as it stays, there it will be influencing the action both of business men and the courts of law."

Other legislation discussed included the bill designed to maintain retail prices, and the new Federal Trade Commission bill.

Necessity for Clean Fuel Told by Diesel Engineers

By E. L. BARRINGER

PEORIA, Ill., April 26.—Lubricating oil additives, sludge and clean fuel were petroleum topics discussed at the tractor meeting of the Society of Automotive Engineers here April 21, 22, and 23.

Diesel engines received the most attention. One paper, on additive agents, was devoted mainly to diesel engine lubrication requirements. Another of three papers on fuel and lubricants was on fuel injection equipment and handling of fuel for the diesel engine.

Data on tests of five lubricants in the single cylinder official Caterpillar diesel test engine, in Sinclair's East Chicago refinery, were given by C. M. Larson, supervising engineer, Sinclair Refining Co., in a paper on "Effect of Addition Agents In Lubricating Oil On Piston And Ring Performance In Gasoline And Diesel Engines."

From these tests it was developed, Larson's paper continued, that an addition agent should have:

Properties Listed

"1. High film strength and wetting ability for piston seal.

"2. Resistance to cracking and to ring sticking.

"3. Anti-corrosion properties to safeguard the liner and piston skirts against corrosion and wear.

"4. Freedom from gumming properties to insure open oil channels and free acting oil controls for economical oil consumption."

In conclusion Larson's paper stated "The future lubricant will be a very high stability hydrocarbon petroleum oil as the vehicle, to which will be added one to five per cent of proven addition agents.

"The selection of the base, whether paraffinic or naphthenic, will depend on the type of engine, gasoline or diesel. The addition agent will not only be governed by the type of engine, gasoline or diesel, but by the composition of the metals used.

Diesel Engine Bearings

"The use of babbitt bearings for diesel engines is rapidly returning, as the proven addition agents used for diesel engines are corrosive to lead bronze, high lead and cadmium bearings. The use of 3 per cent tin in the bearing formula does help resist corrosion to a certain degree. The custom-made lubricant for high output gasoline engines also is dependent on the design and materials entering into their respective construction."

Larson pointed out that the addition agent is highly specialized and that the problem today is more what the engineer reports on ring and liner wear rather than the condition of the oil when drained from the crankcase.

Individuality of lubricating various types of diesel engines was emphasized, with Larson pointing out that a specific additive had been developed for the Caterpillar diesel.

Inhibitors Discussed

Inhibitors were brought up during the discussion and Larson reported inhibitors were being investigated and remarked: "We are getting out of the cast iron age in oils into the alloy stage."

Lubrication of the Caterpillar diesel tractor has been an important and controversial issue in the petroleum industry. When top ring difficulties were encountered in operating tractors during extreme hot weather in some California valleys, work was started on lubrication to eliminate the difficulty.

"Crankcase Ventilation And Sludge" was the paper of W. W. Lowther, Donaldson Co. Lowther's inclusion of dust as part of sludge brought disagreement from Frank Sailor, International Harvester Co., as to whether dust was as important a factor as claimed by Lowther. Sailor reported examination of a 14-inch breather pipe showed dust only on the first three inches.

Diesel Fuel

Diesel engine fuel came before the meeting in a paper by three Caterpillar Tractor Co. engineers, J. M. Davies, E. W. Jackson and G. C. Riegel, on "Some Factors Affecting The Design and Performance of Diesel Fuel Injection."

"Eliminating dirt from the fuel is most important, and yet quite simple to accomplish," the paper stated. "We have accomplished this, first, by providing suitable filters for cleaning the fuel before it reaches the injection equipment; second, by so designing the equipment that dirt will have the minimum effect, and, third, by providing easy means of replacement in case the system becomes damaged."

The paper then delved into materials for diesel engine injection equipment, selection of steel and replacements.

Technical people well understand the injection problem on diesel engines, and the need for exceedingly delicate and accurate equipment as compared with fuel injection on automobiles. The amount of air intake on a diesel is constant, the quantity of fuel varied, so the injection of minute particles of diesel fuel must be done extremely accurately.

Responsibility for a supply of clear diesel fuel to the diesel injection equipment was laid by this paper on the oil industry's marketers and the tractor operator's storage equipment.

"We wish to emphasize again at this time that distillates are originally perfectly clean. *Now*, dirty fuel is the exception rather than the rule. The efforts toward protecting against the hazards of such dirt are to take care of the unusual rather than the normal conditions."

The paper then gave illustrations of service wear, with slides showing fuel valves with two pintles, after 1500 hours on dirty fuel, having the valve seats eroded and the contour of the needle end destroyed. Slides were shown also of pump plungers after 1750 hours of operation on dirty fuel with erosive action of dirty fuel destructive to the cutoff surface of the metering face.

Faulty Handling

"Clean distillates are now available everywhere and the oil refiners are to be complimented on the efficient manner in which they have approached this problem," the paper continued.

"All of the contamination in distillates is due to faulty handling *after* the fuel leaves the refinery. Transportation in dirty tanks previously contaminated with residual fuels and the use of dirty funnels, cans, drums, etc., are the principal sources of dirt. But even when fuel is delivered to the customer in an unsatisfactory condition, the simple process of letting it settle results in exceedingly satisfactory cleaning."

A slide was shown of a settling tank devised by the Caterpillar company as the simplest and most satisfactory method of cleaning the diesel fuel. The tank was sloped, with a drain valve on the lower end to remove the remaining four or five gallons of dirty fuel in the tank. The outlet was on the low end of the tank, directly above the drain valve, and there was a large manhole for tank cleaning. Fuel is pumped from the tank directly to the tractor's storage tank.

Another factor in clean fuel, the paper continued, is a draw-off valve at the bottom of the tractor fuel tank, so sediment can be drained from the tank before the day's work begins. If the valve would be an inch or so off the tank bottom then a sediment trap is at the bottom of the tank.

Fuel Filters

As for filters on the engine the paper reported "the most satisfactory filters we have found are the metallic edge type . . . Our present type is made of oval-shaped wire, wound around a fluted shell. The small lumps, about .0012 inch high, rolled in the wire, serve as spacers, the fuel being allowed to pass between the wires . . . The filters we use are in reality nothing more than a fine mesh, accurately made, and easily cleanable screens of large area."

Filters with packs or elements of cellulose fiber, cotton waste, cotton batting or other materials were deemed unsuitable unless there is some type of screen filter between the pack and the injection equipment, as materials loose from the pack will clog injection equipment passages if not removed. Such filters were credited with having a limited capacity and, after absorbing their capacity of impurities, of no longer serving as filters. Then, unless flow through the filter stops entirely, accumulated foreign material may be discharged. When this occurs the filter, instead of cleaning the fuel, adds to the contamination. Filters containing chemically inert mineral substances also were deemed unsatisfactory.

The paper in conclusion states:

Service Problem Avoided

"It is our belief, therefore, that by the provision for use of relatively clean fuel in equipment designed to be least affected by ordinary slight contamination, the service problem for the diesel injection equipment is definitely less troublesome than for much of the other mechanical equipment on engines.

"For instance, we cite records of life of over 14,000 hours operation where injection equipment is still performing in an entirely satisfactory manner without any adjustments. At an average relative car speed of 30 miles an hour, such life corresponds to about 420,000 miles. This is considerably above the life of electrical ignition equipment ordinarly used on gasoline engines."

Other papers presented at the meeting were "Fuel Injection Equipment," by H. C. Edwards, Timken Roller Bearing Co.; "Resistance Electric Welding," by E. A. Mallett, Taylor-Winfield Corp.; and "Servicing of Multi-Cylinder Diesel Engines," by R. J. Kretz, International Harvester Co.

There was no program on the first two afternoons and most of the 400 registered members and guests accepted invitations of the Caterpillar Tractor Co. to inspect the plant and test field.

WASHINGTON

From the Crown Block . . .

By A. M. PETTY
N. P. N. Washington
News Bureau

WASHINGTON, April 26 — Something big is in the wind regarding the Roosevelt Administration's anti-trust law policy, but too many straws are flying about even to tell which way the wind is blowing.

Two new straws, blown from opposite quarters, floated across the Washington horizon this week, further confusing anyone daring to predict which way the Administration will jump.

These two developments were "emasculation" of the anti-trust division's appropriation and the filing of a dissolution suit against the Aluminum Company of America.

And again this week, Attorney General Homer S. Cummings hinted that the anti-trust law problem was a major question confronting the Administration just now. But Cummings, as usual, carefully avoided expressing his own thoughts in the matter. In itself, this indicates that the decision will be made at the White House.

There are reports going around that "a flock of anti-trust suits" are waiting to be filed. Offsetting this, however, are rumors that some White House advisers are talking of relaxing the anti-trust laws in a scheme to revive some principles of the defunct NIRA.

In this talk of reviving NIRA principles, a name frequently mentioned is that of Donald R. Richberg, former general counsel of the NRA and now in private practice, with Standard Oil Co. of California as one of his clients.

Cummings and Richberg have been to the White House several times recently, but they are always vague — purposely so, about what was discussed.

The air is full of talk about industrial agreements, under a suspension of the anti-trust laws, providing for higher wages and shorter hours, and maintenance of fair trade practices.

To handle the making of such agreements, some new agency would be set up, possibly in the Department of Commerce. Not much, apparently, would be left for the Department of Justice anti-trust division to do.

And some pessimistic friends of the anti-trust division see a step in this direction—camouflaged though it is—in the Department of Justice appropriation bill which has passed the Senate and House.

For 34 years, the departmental appropriation bill has set aside and earmarked funds for enforcement of the anti-trust laws. The anti-trust division has prided itself that it was a separate unit, with an appropriation all its own. Last year Congress appropriated $435,000 for "enforcement of the anti-trust and kindred laws."

But in the appropriation just passed for the fiscal year beginning July 1, Congress earmarks only $110,000 for the anti-trust division—and most of that will go for stenographic and clerical help at Washington. However, the lump sum appropriations for travel, hiring of special assistants to the attorney general, and miscellaneous, have been increased to take care of the anti-trust division, according to the committee report. But these funds are general pot—first come, first served.

This means that the anti-trust division may get more—or less—than its usual share. But, it is pointed out, some other division may run into unexpected expense, or the White House may assign some pet project to the Department of Justice, which would deplete the lump-sum items, cutting down funds available for anti-trust work.

A perfunctory protest by Cummings, and a more vigorous protest by Robert H. Jackson, head of the anti-trust division, were sent to the appropriations committee. But they had no effect, which was perhaps not unexpected.

Congress' action in changing this appropriation item, after it had stood for 34 years, seems in line with the White House desire for greater latitude in spending.

Nothing more serious may result from the change than injury to the feelings of the anti-trust division.

But the change apparently kills all chances of the department hiring economic investigators, such as were suggested by John Dickinson, when he was anti-trust chief, to keep tab on what industries are doing. The new bill bars the employment of experts, unless they are lawyers.

The justice department's anti-trust suit against the Aluminum Company may appear at first glance to counteract whatever significance attaches to the changes made in the anti-trust appropriation.

However, the Aluminum suit, which has been kicked around the department for years without any action being taken, is regarded by observers here as more in the nature of a personal, punitive suit rather than a gesture towards anti-trust law enforcement.

Then, too, the Aluminum suit inevitably is linked with President Roosevelt's recent outburst against "too-high" prices of copper and other metals. The press release about the suit made a point of a one-cent increase in aluminum prices recently.

How the Department of Justice is going to find money to prosecute the Aluminum suit is a question. Cummings frankly admits that he doesn't know whether there will be enough in the anti-trust division's till for this suit.

The oil cases at Madison, Wis., are costing the government about $100,000 this year, which is nearly a fourth of the entire current appropriation for the anti-trust division. And there are other pending cases which will be costly—such as the suit against Ethyl Gasoline Corp., to mention only one.

* * *

Tideland Oil

Attorney General Cummings' worries about who has jurisdiction over oil-bearing tidelands off he California coast will be ended if Congress adopts the bill of Senator Gerald P. Nye, North Dakota, making them public lands.

Several months ago, Secretary of the Interior Ickes asked Cummings for an opinion on an application to lease these lands received from a California producer who had been turned down by the state.

At the time, Cummings confidently promised an opinion shortly, saying that the justice department's lands division was then debating whether the California tidelands should be declared public lands or naval oil reserves. These alternatives indicated that the department was not seriously considering California's claims.

But now the attorney general is not so sure. He says now that the lands division is going back into California history to see if there is any foundation for the state's claim. And from other sources, comes word that opinion in the lands division is sharply divided as to whether California or the U. S. has a better claim to these lands.

Senator Nye insists that the bill was his own idea and was not introduced at the suggestion of the Department of Justice. But it would be welcomed by Cummings.

Nye points out that the bill would also apply to the Gulf Coast, as well as California. If the federal government has any designs on oil-bearing lands off the Gulf coast, then the Texas Annexation Treaty will be dusted off again. This treaty, which has been used since the Thomas-Disney oil bill fight, reserves to the Lone Star State, then a nation in its own right, all its public lands.

* * *

Longer Margins Face Probe

In the last few days, the track has been cleared at the Federal Trade Commission for some of the oil cases under the Robinson-Patman law against price-discrimination.

Complaints have been sent in to the FTC against the loaning of equipment, the giving of lower prices to consumers than to dealers, and other marketing practices of some oil companies.

But the matter of larger margins, or lower prices, to 100 per cent or undivided dealers seems slated to get first attention.

The FTC seems to have initiated this dealer margin case on its own—or at least it didn't need much encouragement to look into it. Letters were written to a number of oil companies asking them to justify under the Robinson-Patman law their lower prices to dealers selling their brand of gasoline exclusively.

Hugh Neal Joins Staff Of Gregory Co.

TULSA, April 25. — Hugh Neal has joined the staff of L. S. Gregory Co. of Tulsa, refining engineers and sales representatives for the Perco copper chloride sweetening process. Neal was chief chemist for Rock Island Refining Co. at Duncan, Okla., before taking his new position.

He was a refining chemical engineer for the Empire Oil & Refining Co. for several years before his service with Rock Island.

Tailor Gasoline for Seasons

(*Continued from page* 9)

to be adopted as properties of the gasoline at time and place of delivery in bulk. The specifications as proposed provide for automatic variation by the seller to meet the requirements of temperature variations.

With reference to octane number the specifications provide; "In all cases the octane number shall be agreed upon between the purchaser and the seller." In general, the specifications quote the following as applicable at present: 75 octane number, minimum, for premium priced gasoline; 67 octane number, minimum, for regular priced gasoline and 45 octane number for less than regular priced gasolines.

The requirements enumerated in the specifications are to be determined in accordance with the present A. S. T. M. test methods: distillation by D 86; Reid vapor pressure by D 417—35 T, octane number by D 357—36 T, sulfur corrosion by D 130, and gum content by D 381.

The announcement of the tentative gasoline specifications for purchasing agencies as issued by the American Society for Testing Materials is as follows:

Types

2. Three types of gasoline are provided, as follows:

Type A.—For use under normal conditions.

Type B.—For use where a gasoline of greater overall volatility than Type *A* is desired.

Type C.—For use where a relatively non-volatile fuel is desired.

General

3. These specifications state the required properties of gasoline at the time and place of delivery in bulk. They provide for an automatic variation by the seller to meet the requirements of seasonal changes in temperature, depending upon the season and the locality in which the product is to be used. This is done by providing three vapor pressures and 10 per cent distillation points for each type specified and differentiating the use of these variations according to the months of the year and the geographical location by states.

Detailed Requirements

4. The three types of gasoline shall conform to the requirements shown in Table 2.

TABLE 1

Schedule for Georgraphical Seasonal Variations, W, F, and S.

This schedule represents the time and place of use of the gasoline. Shipments intended for future use may anticipate this schedule. Where alternative variations are indicated, (WF, FS, SF, FW) the option shall be exercised by the seller.

Territory	Month											
	Jan.	Feb.	Mar.	Apr.	May	Ju.	Jy.	Au.	Sept.	Oct.	Nov.	Dec.
Sec. 1	W	W	WF	F	FS	S	S	S	SF	F	FW	W
Sec. 2	W	W	WF	FS	FS	S	S	S	SF	F	FW	FW
Sec. 3	W	WF	FS	FS	S	S	S	S	S	SF	F	FW
Sec 4	F	FS	FS	S	S	S	S	S	S	SF	SF	F

SECTION 1
Idaho
Iowa
Maine
Michigan
Minnesota
Montana
New Hampshire
North Dakota
South Dakota
Vermont
Wisconsin
Wyoming

SECTION 2
Colorado
Connecticut
Delaware
Dist. of Columbia
Illinois
Indiana
Kansas
Kentucky
Maryland
Massachusetts
Missouri
Nebraska
Nevada
New Jersey
New York
Ohio
Oregon
Pennsylvania
Rhode Island
Utah
Virginia
Washington
West Virginia

SECTION 3
Alabama
Arizona†
Arkansas
California
Georgia
Mississippi
New Mexico†
North Carolina
Oklahoma
South Carolina
Tennessee
Texas†

SECTION 4
Arizona‡
Florida
Louisiana
New Mexico‡
Texas‡

†North of 33 deg. latitude.
‡South of 33 deg. latitude.

Scope

1. (*a*) These specifications are for the use of purchasing agencies in formulating specifications for purchases of gasoline under contract.

(*b*) These specifications are not a definition of gasoline, nor do they include all types of gasoline or motor fuel satisfactory for motor vehicles. Certain equipment or conditions of use may require fuels having special characteristics. Some trucks and buses, for example, may require lower vapor pressures and higher distillation temperatures than those included in these specifications.

Basis for Purchase

5. The purchasing agency shall:

(*a*) State the minimum octane number as agreed upon with the seller (Section 4, footnote "b"),

(*b*) Specify the volatility, Type *A*, *B*, or *C*, desired, and

(*c*) Indicate the season and locality in which the fuel is to be used.

Methods of Testing

6. The requirements enumerated in these specifications shall be determined in accordance with the following methods of test of the American Society for Testing Materials:

(*a*) *Distillation.* — Standard Method of Test for Distillation of Gasoline, Naphtha, Kerosine and Similar Petroleum Products (A.S.T.M. Designation: D 86).[1]

(*b*) *Vapor Pressure.*—Tentative Method of Test for Vapor Pressure of Motor and Aviation Gasoline (Reid Method) (A. S. T.M. Designation: D 417—35 T).[2]

(*c*) *Octane Number.*—Tentative Method of Test for Knock Characteristics of Motor Fuels (A.S.T.M. Designation: D 357—36 T).[3]

(*d*) *Corrosion.*—Standard Method of Test for Detection of Free Sulfur and Corrosive Sulfur Compounds in Gasoline (A.S.T.M. Designation: D 130).[4]

(*e*) *Gum.*—Standard Method of Test for Gum Content of Gasoline (A.S.T.M. Designation: D 381).[5]

TABLE 2

Requirements of the Three Types of Gasoline

Distillation Temp., deg. Fahr., of:		Type A	Type B	Type C
10 per cent evaporated, max.	W†	140	140	167
	F†	149	149	167
	S†	158	158	
50 per cent evaporated, max.		284	257	284
90 per cent evaporated, max.		392	356	392
Residue, max., per cent		2	2	2
Vapor pressure, max., lb. per sq. in. at 100 F.	W†	13.5	13.5	13.5
	F†	11.5	11.5	11.5
	S†	9.5	9.5	9.5
Octane number, min.		67 or 75‡	67 or 75‡	45‡
Corrosion		passes	passes	passes
Gum. max., mg. per 100 ml.		7§	7§	7§
Sulfur		*	*	*

†*W*, *F*, and *S* denote the automatic seasonal variations indicated in Table I.

‡In all cases the octane number shall be agreed upon between the purchaser and the seller. In general, the following is applicable at the present time (1937):

75 octane number, minimum, corresponds to premium-priced gasolines.

67 octane number, minimum, corresponds to regular-priced gasolines.

45 octane number, minimum, corresponds to less than regular-priced gasolines.

§In the case of gasoline containing added non-volatile material, the gum requirement shall apply to the base stock.

*The technical data available do not afford an adequate basis for specifying maximum sulfur content. At the present time (1937), gasolines containing up to 0.25 per cent sulfur are distributed within the United States.

[1] 1936 Book of A.S.T.M. Standards, Part II, p. 870.

[2] *Proceedings*, Am. Soc. Testing Mats., Vol. 35, Part I, p. 903 (1935); also 1936 Book of A.S.T.M. Tentative Standards, p. 648.

[3] *Proceedings*, Am. Soc. Testing Mats., Vol. 36, Part I, p. 848 (1936); also 1936 Book of A.S.T.M. Tentative Standards, p. 620.

[4] 1936 Book of A.S.T.M. Standards, Part II, p. 973.

[5] *Ibid.*, p. 935.

Program for Mellon Institute's Dedication Is Announced

PITTSBURGH, April 26.—The probability that one or more important pronouncements will emerge from the dedicatory program of Mellon Institute's new building, May 5 to 9, has been indicated by Dr. E. R. Weidlein, director of the institute, in the announcement of subjects chosen by the ten noted scientists who will be guest speakers.

At the dedication exercises May 6, Dr. Irving Langmuir, associate director of the research laboratory of General Electric Co., will speak on "Chemical Research." Dr. H. C. Urey, co-discoverer of "heavy" hydrogen, will speak on "Accomplishments and Future of Chemical Physics." Dr. W. P. Murphy, co-discoverer of liver extract treatment for pernicious anemia, will deal with "Scientific Research in the Solution of Medical Problems."

At the Trustees' dinner, also May 6, Dr. Karl Compton, president of Massachusetts Institute of Technology, will speak on "A National Asset." Dr. B. T. Brooks, widely known for work in petroleum chemistry, will speak on "The Character of Robert Kennedy Duncan," whose ideas on applied research led to the founding of the institute in 1913. Dr. F. C. Whitmore, of Pennsylvania State College, has selected for his subject "A Post-Doctoral Research Institution."

On May 7 the third outstanding event on the dedicatory program will be the symposium on recent progress of science. Dr. F. B. Jewett, president of Bell Telephone Laboratories, will speak on "Communication Engineering." "The Synthetic Organic Chemical Industry" will be the subject of Dr. G. O. Curme, vice president and director of research of the Carbide and Carbon Chemicals Corp., and "Early Work on Insulin" will be described by Dr. Frederick Banting, discoverer of insulin treatment of diabetes. Dr. W. W. G. Maclachlan, Pittsburgh pneumonia specialist, will discuss "Problems in the Chemo-Therapy of Pneumonia."

Texas Workers Doubtful About Joining New Unions

N. P. N. News Bureau

TULSA, April 26.—The two big rival attractions, the A. F. of L. and the C. I. O., are now in full cry for the oil worker's membership and his dues. Organizers for both these warring factions are active throughout the Mid-Continent and the southwest.

For the federation, the job was turned over to John P. Frey, who heads the metal trades department and that designation has been stretched to cover just about everybody who works in oil field or refinery. As a matter of fact, there is nothing new about the departure from strict rules concerning crafts. The International Association of Oil Field, Gas Well and Refinery Workers of America was an A. F. of L. affiliate before it cast its lot with John L. Lewis last year and it admitted to membership throughout its existence anybody, from ditch digger to highly skilled workers, such as drillers and stillmen.

Frey came into the oil country last week and this was the signal for the return to the Gulf Coast area of Adolph Germer, C. I. O. organizer, who is looked upon as the direct representative of John L. Lewis. It was said by P. G. Wilson, oil union councilman in the coastal district, that Lewis himself would soon appear and would make speeches in Texas and Louisiana.

Wilson estimated an increase in membership of the Houston local of more than 300 since the big push started.

No A. F. of L. Fanfare

The federation's campaign is moving very quietly. It is not, apparently, looking for publicity and leaders to whom this writer has talked display reluctance at being quoted. John L. Frey did say, however, that the federation is now in position to make one general contract with an oil company covering all workers. Thus, while each craft would retain immediate jurisdiction over its members and would be directly responsible for its conduct, final authority in disputes would repose in the metal trades department of the A. F. of L.

Both the rival organizations are extending the campaigns to the office workers of the oil companies in this area, but with what success is not known by others than the organizers.

C. I. O. the past week backed up a complaint at Houston in which Joe Wright, member of the executive committee of the oil union local 227 complained to Dr. Edwin A. Elliott, regional director of the National Labor Relations Board, that Wright had been discharged by the Rednal Oil Co. because of his union activities.

New Management Policy

In the midst of the unionization campaign, the management of the Humble Oil and Refining Co. announced discontinuance of the company union plan at its Baytown (Tex.) refinery. The company said it would bargain collectively with any labor group representing a majority of its employes. Individual workers will also be heard at any time. Employes will be paid for time spent during working hours in conference with employers, it was announced.

Public replies to C. I. O. organization efforts on the Gulf Coast continued from the Humble Employes Security League, formed several weeks ago by the Baytown refinery employes, of whom approximately 90 per cent have joined to resist C. I. O. organization. The league publishes at no regular interval a paper called The Voice. In the latest issue reply was made to the chief arguments organizers are making to C. I. O. prospects.

Quotes from The Voice

"In the March 11 issue of The Voice under the caption, "What We May Expect," it was said that Lewis and his C. I. O. cohorts would strew promises with reckless abandon, would attempt coercion, intimidation and resort to direct threats. If tactics followed in the automobile, rubber and steel industries can be taken as an example, (and why shouldn't they) such a statement can be made without reservations, the paper said. It continued:

"It might be well to anticipate the C. I. O. tactics and take a look at some of the answers. Following are some of the reasons that will be glibly presented as to why you should join the C. I. O. racket and more specifically, Local No. 333 of the Oil Field, Gas Well and Refinery Workers Union:

"1. The Humble Oil & Refining Co. is making money every year and you should get your share. Join the C. I. O. and fight for your rights.

"2. The president wants you to join the C. I. O. Join up and be patriotic.

"3. The C. I. O. gained union recognition from the automobile, rubber and steel industries. Join up and do your part in organizing the rich oil industries. (That word 'rich' is very appealing to Mr. Lewis for reasons shown later.)

"4. When all industries are organized we shall be in complete control and will be able to force all business to accede to our every demand. Join in the great movement for freedom.

"It will cost you $2.00 a month. Surely you don't want other workers to carry your share. Join up and do your part.

"Then if you murmur that Humble workers receive a higher rate of pay than the average man in the oil industry, and that certain rather helpful benefits are extended to all Humble employes, Mr. Lewis' very versatile lieutenant not in the least taken aback, will elucidate, quote eloquently about as follows:

"6. In order that you may be guaranteed a continuation of these benefits you must join the C. I. O. and let us protect your rights.

"7. If you don't join now you'll surely lose your job when all workers are organized and the C. I. O. is in complete control, so you might as well join while the initial $5.00 fee is suspended.

"Nice line of chatter, isn't it? Do you wonder that a small percentage of workers all over the United States, who have not been quite able to think for themselves, have succumbed to the glib tongue of the high pressure boys from the coal mines and garment factories? Others whose intestinal fortitude was not up to par succumbed to No. 7.

"Now let us untangle this conglomeration of threats and promises and see just how much we may depend upon the promises, how much attention we should pay to the propaganda and how much we should be afraid of the threats.

"1. True the Humble companies are making money, thank God for that. If they were not we wouldn't receive more pay than the employes of other oil companies operating in this area, we couldn't possibly receive, in addition, 10.7 per cent of our wages in the form of annuities, stock, sickness benefits, vacations, full pay for jury duty, etc. Regardless of fancy words or threats, and promises of a pot of gold, we Humble employes have sense enough to know that the people who furnish the money to start, and still furnish the money to run, the Humble companies have the right to a fair return on their investment. As for the large reserves we were able to buy, during the depression, millions of dollars worth of rich oil reserves that will furnish work for us for years to come. We must have crude to operate and we've got it, so we have no fear on that score.

"Mr. Lewis says, 'Join the Union and fight for your rights.

"Thanks, Mr. Lewis, we'll fight for our rights, all right. But peacefully and in our own simple fashion. If by fight you mean go out and strike and carry clubs and threaten men, women and children, then we just can't be with you. You see we are Americans who know we have the freedom of speech and we have our own joint conference to take up our problems with the management. And it just happens that these employes who represent us work right here in the plant and know our problems. They have no axe to grind and don't get pay for it, they collect no dues, so we're pretty free of signs of racketeering. Besides, you'd charge us two dollars every month and more some months, up to 50 per cent of our wages if you wanted to, so we just can't be with you.

No Presidential Backing

"2. Since when has Mr. Roosevelt or any other high government official indicated that he wanted us to join the C. I. O.? He asked us publicly over the radio to join the Red Cross and help out the flood sufferers. We did that because it was a calamity of national proportions and our sympathies went out to those who had lost their homes and means of livelihood. But join the union, NO! He wants all workers to take advantage of their right to deal or bargain collectively or individually with their employers. We, as Humble employes, have done that for nearly 20 years. The President of the United States doesn't care who we join up with or how we bargain or whether we bargain at all, but he does want us to know we have that right. We're way out in front for we've been doing that for a long time and in a very peaceful and effective manner.

"Regardless of political affiliations we all have an inborn patriotism called love of country. We had this before the C. I. O. existed and we'll have it after the C. I. O. is gone. But for the life of us we can't

see how strikes, loss of production, loss of pay and endangering human life could be called patriotism. It just doesn't fit. Striking and forcing men to join any organization is un-American and unpatriotic, it smacks loudly of communism, and we want none of it.

Rubber and Steel

"3. So the great C. I. O. gained Union recognition for automobile, rubber and steel, did it?

"Prior to and during the early part of the automobile and rubber strikes the management of the companies involved put out statements of company policies that had been in effect for years. These policies, in part, were essentially the same as the Humble company, namely, they would bargain with the duly elected representatives of any group. This included the U. A. W. A. Now when the strike was over, after 140,000 workers went back to work, what had they gained by the stay out or stay in? Well, they had a duly signed document from the management saying that they would bargain with U. A. W. A. for its members. WHOA! Yes, that's right, they got exactly what they already had, and Mr. Lewis had pulled in his horns about that closed shop deal, something that he had proclaimed loudly, with much shaking of his great fist and raising of his eyebrows, that he'd never do. Steel simply followed suit. So where's your victory, Mr. Lewis? Just incidentally, of course it was none of Mr. Lewis' concern, but each average worker had lost in the neighborhood of $250 in wages. If you stop to think it isn't hard to figure what the loss of $250 would do to your budget.

Chalk Line

"4. When all the workers in all industries are members of the C. I. O. Mr. Lewis can make employers walk a chalk line.

"Well, the C. I. O. has about two million of the thirty million workers in the United States. He's got a long way to go and opposition, employe and public opinion, is getting stronger against him every day. But suppose he did arrive at his goal, who would be in charge? He says WE, but he means I. Employes in any plant would hardly get back from one strike until they were called out on another. Any attempt to remonstrate with union leaders would mean at least a heavy fine or perhaps expulsion with consequent loss of our jobs. We lost freedom of speech, we are completely dominated by a radical, bushy-eyed politician who does not know our problems and doesn't care. For Mr. Lewis is interested in Number 1. Mr. Lewis has been called a gambler. Well maybe, but he plays only cinches! After all, when he calls a strike, he or his high pressure organizers lose nothing. Their pay goes right on. It's the workers that lose.

"5. It will cost you only $2.00 a month. Well, that was covered in the March 11 issue by quotations taken from the C. I. O. by-laws. You may be assessed any amount by majority vote of the MEMBERS VOTING. What members, where? We don't know. From the wording it's left wide open. If six members get together and vote to make such an assessment we assume the big stick would be used to put it over. Why pay even $2.00 for the privilege of working? Under the constitution of the United States we have that right and it's gratis. Let's not become a party to such an insidious racket.

"Not Russia"

"6. Let the C. I. O. protect you, assure continuation of your benefits.

"In the first place, we don't need protection, this isn't Germany or Russia. We'll protect ourselves. Free benefits given by the Humble companies were granted long before the C. I. O. came into existence and, as we see it, the only thing that will cause them to be taken away is loss of production and increased cost of operation caused by strikes, sabotage, etc. Of course if we all join the C. I. O. they'll be taken away because they were granted gratis because of the company's interest in its employes and if we let the company down it's only logical to believe that they might do some letting down themselves. Why should we fear the future. We're saving in the Annuity and Thrift plan and if we're sick we'll be taken care of, we can retire at the age of 65 on a nice pension, so how does the C. I. O. come into our picture.

"7. You'll be forced to join the union when industry is completely organized.

"One Last Word"

"This argument will be used on those of us who are thought to possess low mentality and little intestinal fortitude, so when the high pressure boys give you that, swing from the ankles. We're all free American citizens and will choose the organizations that we wish to join. Don't worry, you won't be forced, and the company certainly won't fire you because you don't belong to the C. I. O.

"Now one last word and I'm through. If you're a member of the union, get out before you commit yourself to do just anything Lewis and his cohorts want done."

Southwest's Crude Production Is Exceeding Current Demand

N. P. N. News Bureau

TULSA, April 26. — Excess of crude oil production over current demand, indicated in recent weeks by the Bureau of Mines weekly reports of oil going into storage, has brought a slight softening to the tone of the crude oil market.

Some buyers believe there will be allowable production in certain Oklahoma and Kansas areas not run from leases during April. A current estimate is that allowables in Oklahoma are 15,000 barrels too high and that Kansas should come down about 5000 barrels.

The Bureau of Mines forecast an increase in demand for May in both states and indications are that the regulatory commissions of the two states will take full advantage of the increase and that Kansas probably will again write an order calling for more than the bureau estimate. Kansas in recent months has paid more attention to what Texas is doing than to the bureau forecasts.

And Texas again went away up there, setting for May an allowable higher than ever before. The Railroad Commission of Texas held its regular proration hearing April 20 and its order was issued April 22. There was a reduction for April from the March allowable; new completions quickly restored much of the cut. On May 1 the allowable production for the state will be 1,411,236 barrels. Allowable on April 19 was 1,398,116 barrels, so the allowable on April 30 should be fully equal to the starting figure for May. Hence, unless reductions are made, the prospect is that the allowable during May will reach the figure of 1,450,000 barrels or more.

Nominations to purchase crude received by the commission indicated a daily demand for May of 1,631,837 barrels, or 220,601 barrels more than was allowed.

There was a general upping of quotas in all Texas areas from the April 1 figure, although some are left below what they were on March 1. The figures for the three months' basic allowables — quotas effective the first of each month and disregarding intra-month gains through new wells and adjustments here and there of allowables — are shown below.

The anticipated gain in demand may take up the slack that now exists and the additions to storage may be turned into withdrawals. But, for the moment, Governor Marland's recent bid for advance in crude prices finds no takers. His alternative, a severance tax in Oklahoma, likewise will be forgotten, at least during the present legislative session, now near its end.

District	March 1	April 1	May 1
East Texas	453,000	455,500	459,300
Panhandle	77,835	74,200	83,374
North Texas	66,400	65,487	66,528
West Central	64,428	62,891	65,350
West Texas	188,463	178,947	187,915
East Central	74,479	70,202	79,570
Rodessa	39,400	38,454	40,583
Southwest Texas	227,486	209,430	226,862
Gulf Coast	207,023	193,853	201,754
	1,398,514	1,348,964	1,411,236

Sinclair Builds Plant in Africa

NEW YORK, April 24.—A refinery and bunkering station, to handle 100,000 tons (about 700,000 barrels) of crude per year, or about 2000 barrels per day, will be built soon in Tripoli, North Africa, by the Italian Azienda Commerciale Italiana Olii Minerali, advices here stated. The ACIOM is the representative in Italy and Italian Colonies of the Sinclair Refining Co.

This company has formed a new refining company, Raffinerie Olii Minerali per l'Africa Del Nord Anonima (Romana), which expects to increase the plant's capacity of 50 per cent in a short time. The plant is expected to be operating by the middle of 1938.

The ACIOM, established in 1934, is capitalized at 9,000,000 lire, while the Romana has 15,000,000 lire capital stock, which may be increased to 40,000,000 lire in the next few years, reports stated. This construction is a part of the plan of the Italian government to place supply depots at strategic points in the Mediterranean, in its program of development of its African dependencies and protectorates.

Mid-Continent Gasoline Shipments Show Sharp Increase in March

N. P. N. News Bureau

TULSA, April 26. — Gasoline shipments from the 63 Mid-Continent refineries reporting monthly operations to Western Petroleum Refiners Association were 2,085,035 barrels higher in March than in February, according to compilation of the reports made public by the association's department of public relations.

Gasoline production was increased 697,408 barrels, with crude runs having been boosted 1,175,748 barrels for the month. The increase in shipments was not sufficiently large, however, to offset production and inventory was increased 157,244 barrels. At the current rate of shipments gasoline stocks at the end of March represented 46 days supply, as compared with 56 days supply at the end of February. In Table No. 1 is shown gasoline production, shipment and stocks totals by months.

The stocks of kerosine, tractor fuels, furnace and gas oil and fuel oil are shown in Table No. 2.

Shamrock Will Process Shell, Sinclair Gas

By Teletype

AMARILLO, Texas, April 24. —A three-way deal, whereby the Shamrock Oil & Gas Co., will process gas which may be developed from properties of the Shell Petroleum Corp. and Sinclair Prairie Oil & Gas Co. in Moore county, will eliminate the construction of a gasoline plant previously planned by Shell and Sinclair. Gas will be piped from the properties to the Shamrock's McKee plant.

The Columbian Carbon Co., which originally was to have built a carbon black plant to handle the residue from the proposed plant, now will enlarge the plant which has been processing the residue from Shamrock's McKee plant. When completed the carbon black plant will have a burning capacity of approximately 95,000,000 cubic feet of natural gas daily.

TABLE ONE

Gasoline Statistics for March, Covering 52 companies operating 63 Plants in the Mid-Continent, and for the 12 months preceding, as compiled by the Western Petroleum Refiners Association

(*Figures in Barrels*)

1936	Gasoline Production	Gasoline Shipments	Inventory End of Mo.	Days Supply	Crude Runs to Stills
March	5,274,974	5,424,012	8,951,426	51	9,020,011
April	5,663,572	6,255,746	8,359,421	40	9,812,590
May	6,136,328	6,411,994	8,083,755	39	10,797,884
June	6,336,050	7,337,301	7,082,504	29	10,481,380
July	6,640,558	7,592,311	6,130,751	25	10,961,221
August	6,661,016	7,171,374	5,620,393	24	10,538,741
September	6,694,043	6,887,245	5,427,191	24	10,140,382
October	6,811,439	6,770,163	5,470,027	25	10,006,425
November	6,525,226	6,134,431	5,860,822	29	9,840,971
December	6,531,193	5,884,702	6,507,313	32	10,042,740
1937					
January	*6,518,279	*4,595,030	*8,430,562	*57	*10,256,148
	†7,355,233	†5,277,919	†8,915,993	†52	†11,763,245
February	*5,917,184	*4,531,719	*9,816,027	*61	*9,529,689
	†6,629,802	†5,184,931	†10,360,864	†56	†10,867,890
March	*6,475,716	*6,294,108	*9,997,635	*49	*10,457,622
	†7,327,210	†7,169,966	†10,518,108	†46	†12,043,638

*Including only companies which reported in December and previous months.

†Including refining companies whose figures have not been shown in this report previous to January.

TABLE TWO

Comparison of stocks of kerosine, tractor fuels, gas oil and fuel oil as reported by members of Western Petroleum Refiners Association on Feb. 28 and March 31.

(*Figures in Barrels*)

	March 31	Feb. 28	Change
Kerosine 41-43	223,297	225,118	— 1,821
Kerosine 42-44	157,963	157,932	+ 31
Tractor Fuel A	134,348	123,212	+11,136
Tractor Fuel B	95,482	83,632	+11,850
Furnace and Gas Oil			
No. 1 white	161,414	189,745	—28,331
No. 1 straw (38-40)	166,704	159,861	+ 6,843
No. 2 straw (32-36)	292,347	279,640	+12,707
No. 2 dark (32-36)	223,095	232,903	— 9,808
U. G. I.	87,712	85,159	+ 2,553
Fuel Oil			
28-30 zero	74,987	85,909	—10,922
24-28	148,769	118,650	+30,119
18-22	891,128	847,764	+43,354
14-16	149,769	123,534	+26,235
14 and below	676,314	720,159	—43,845

DAILY AVERAGE PRODUCTION IMPORTANT DISTRICTS
American Petroleum Inst. Figures

	Week Ended April 24 Barrels	Week Ended April 17 Barrels
Oklahoma City	172,400	167,200
Total Okla.	670,650	657,400
East Texas	458,350	457,600
Total Texas	1,381,600	1,373,450
Rodessa	48,350	48,050
Total La.	249,200	250,600
California	628,900	629,500
E. of Rockies	2,867,500	2,840,050
Total U. S.	3,496,400	3,463,550
Crude imports	92,430	87,570
Tot. new sup'ly	3,588,830	3,551,120

Pipeline Firm Rebuilds System

N. P. N. News Bureau

TULSA, April 24.—The Great Lakes Pipeline Co.'s directors have approved a construction program designed to give that unit a more flexible and efficient operation.

The company plans to replace between Osceola, Iowa, and Omaha, Neb., 100 miles of 4-inch pipe with 6-inch pipe, officials announced, and to parallel its present 8-inch line between Barnsdall, Okla., and Kansas City, with a line of similar size, and to construct a 6-inch loop between Des Moines and the Twin Cities. Only one pumping station on the Omaha line will be abandoned.

Shippers have always demanded, it is reported, that their respective gasoline not lose identity in the system. The growing diversity of specifications does not permit the present operation to function to the satisfaction of those tendering gasoline both with respect to the number of grades transported and the volume which the pipeline can handle. It also is reported to be the experience of all gasoline pipeline carriers that within a few years after the beginning of operations approximately 15 to 20 per cent of the original capacity of the lines is lost because of the drying action of the gasoline roughening the inside walls of the pipe and increasing friction losses and decreasing throughout. The Great Lakes line is understood to have lost 18 per cent of its original capacity in this manner.

The additional facilities will not increase present capacity materially but will reduce the load factor, it was said.

The combined loadings of the eight shippers at the six pipeline terminals in 1936 is understood to report 12 per cent of the total gasoline consumed in the 10 states served by the Great Lakes line.

Mid-Cont. Bright Stock Demand Up

N. P. N. News Bureau

TULSA, April 26. — Bright stock shipments from 13 Mid-Continent refiners reporting monthly operations to Western Petroleum Refiners Association increased 103,765 barrels in March as compared with total for February. Production showed an increase of only 15,183 barrels. Inventory stocks on hand March 31 were 302,529 barrels.

Pennsylvania bright stocks have been exceptionally scarce and commanding top prices.

The increase in shipments was the result of a gain of 56,000 barrels in export shipments along with a gain of 47,000 in domestic shipments. The inventory the last day of March, based on rate of shipment for that month, amounted to 63 days supply, as compared with 75 days supply at the end of February.

Blended oils also moved out briskly during March, due probably in part at least to the shipment of large quantities previously bought by farmers in the grain belt on the so-called "pool-car" plan. Shipments totaled 235,696 barrels in March, a gain over February of 98,215. Refiners at the same time stepped up manufacture of blended oil to 238,353 barrels, a gain over February of 102,663.

Viscous Neutrals

Production of viscous neutrals was reduced 20,477 barrels, while shipments increased 67,041, with 11,327 barrels of this increase due to heavier export movement. Inventory was lowered 50,000 barrels, with stocks at end of the month, based on current rate of shipment, amounting to 42 days' supply as compared with 53 days supply at the beginning of the month.

Paraffin oils production was increased 2000 barrels, but shipments dropped 4300 barrels, with little change made in inventory.

Steam refined stock production was 2895 barrels lower with shipments showing a gain of 14,499. Inventory was reduced 6000, to 139,792 barrels.

Oil Man in Hospital

CHICAGO, April 26.—Ronald S. Lewis, salesman for Calumet Refining Co., is in Lakeview hospital. While crossing a street in Chicago last week Lewis was struck by an automobile and his skull fractured.

Gasoline Consumption to Reach New High, Bureau of Mines Says

N. P. N. News Bureau

WASHINGTON, April 26.—Gasoline consumption will smash all records in May, exceeding by nearly 1,000,000 barrels that for any other month in history, according to estimates of the U. S. Bureau of Mines.

Domestic demand for motor fuel in May will amount to about 47,650,000 barrels. The record-high for any month up to date is 46,492,000 barrels, the amount consumed in July, 1936. The bureau's forecast for May is 13 per cent above the actual gasoline demand for the corresponding month a year ago.

May is not in the top-flight of high-consumption months, so this indicates that domestic demand for July or August may run above 50,000,000 barrels.

Adding 2,800,000 barrels for estimated exports, the total gasoline demand for May would be 50,450,000 barrels.

The industry entered April with gasoline stocks about 8,000,000 barrels higher than last year, but the Bureau of Mines expects that "increased consumption will reduce these stocks faster than last year."

Daily average production of crude required to meet demand in May is estimated at 3,332,900 barrels, or 89,900 barrels higher than the April forecast and 309,100 barrels higher than actual production in May last year.

Crude production during the four weeks ended April 3 averaged 3,428,000 barrels—the highest sustained production ever recorded—but the bureau feels that its estimate for that period is not far out of line. It points out that stocks of domestic crude were increased 7,061,000 barrels during this four-week period, making the "indicated demand" 3,176,000 barrels as compared with 3,168,000 barrels forecast by the bureau.

Adjustment for benzol and direct sales and losses of natural gasoline, amounting to 900,000 barrels, makes the May estimated production of gasoline 46,850,000 barrels. This is distributed among the refining districts, as follows:

District	Barrels
East Coast	7,010,000
Appalachian	1,710,000
Indiana-Illinois	8,120,000
Oklahoma	3,170,000
Kansas	2,860,000
Inland Texas	3,840,000
Gulf Texas	10,130,000
Gulf Louisiana	1,710,000
Inland La.-Ark.	980,000
Rocky Mountain	1,130,000
California	6,190,000
Total U. S.	46,850,000

The natural gasoline percentage is estimated at 5.0, or 2,340,000 barrels, and the gasoline yield, 45.1 per cent. This figures out to 44,510,000 barrels of cracked and straight-run production, requiring 98,620,000 barrels of crude.

Runs of foreign crude will total 2,900,000 barrels, with crude exports at 4,500,000 barrels. The estimate for fuel and losses is 3,100,000 barrels.

Required daily average crude production by states in May, as determined by the Bureau of Mines, with comparative estimates for April and actual production figures for February, is as follows:

State	Forecast May 1937	Forecast April 1937	Act. prod. Feb. 1937
Texas	1,340,800	1,297,900	1,349,400
Okla.	622,700	609,600	621,700
Calif.	583,300	579,900	589,800
La.	249,400	244,800	238,200
Kan.	187,100	183,000	188,700
New Mex.	99,800	91,400	98,800
Penna.	52,600	49,800	49,400
Wyo.	49,000	44,000	49,700
Mich.	34,900	30,600	29,900
Ark.	28,500	27,400	27,200
Ky.	14,800	15,600	14,600
Mont.	15,200	14,600	16,300
New York	14,500	14,000	14,600
Ill.	12,500	12,800	12,200
West Va.	10,500	10,500	10,400
Ohio	10,300	10,200	10,100
Colo.	4,800	4,800	4,300
Ind.	2,200	2,100	2,300
	3,332,900	3,243,000	3,327,600

Withdraws Complaint

WASHINGTON, April 26. — The Federal Trade Commission has dismissed its complaint against the Cummer Products Co., Bedford, O., charging unfair methods of competition in connection with sale of Energine cleaning fluid.

The FTC complaint alleged that claims of the company were false that Energine left no spot, odor or stain, and that it would not injure the finest fabrics. No reason was given for dismissing the complaint.

Skelly To Build Plant In Texas Panhandle

TULSA, April 27.—The Skelly Oil Co. will build a 10,000 gallon gasoline plant in the Skellytown area of the Texas Panhandle, J. W. Vaiden, head of Skelly's natural gasoline department, announced. The plant will probably be expanded to produce 15,000 gallons per day within a short time, he said.

The plant will cost approximately $275,000, and is in the Watkins-Jamieson area of Hutchinson County. It will operate on gas yielding, by standard test, from two to six gallons of gasoline per 1000 cu. ft., chiefly casinghead gas. The unit is of the oil absorption type. About 100 men will be employed in the construction, and the plant is expected to be in operation by June 15.

Cities Service to Build Gas Treating Plant

TULSA, April 20. — Cities Service Gas Co. has been licensed by the Girdler Corp., Louisville, Ky., to build a gas purification plant near Lyons, Kans. The new plant will use the Girbitol process to remove hydrogen sulfide from 10,000,000 cubic feet of gas daily.

Gas to be treated shows a hydrogen sulfide content of 135 grains per 100 cubic feet. The plant is expected to reduce this to less than 1 grain per 100 cubic feet. Treated gas will be used for domestic and commercial heating.

Construction of the treating plant will begin at once. The plant will be completed early in the summer.

Motor Fuel Stocks Down 400,000 Barrels

NEW YORK, April 27.—The first reduction in U. S. gasoline stocks in many weeks was reported by American Petroleum Institute for the week ended April 24. Stocks for country as a whole were down 400,000 barrels last week. Crude runs at plants with 88.8 per cent of country's refining capacity were up 70,000 barrels on daily average, Institute's report shows.

Reduction of 370,000 barrels in Texas-Gulf district and 219,000 barrels in California together with smaller reductions in several other districts more than offset increase of 260,000 barrels in East Coast gasoline stocks. Estimated total U. S. gasoline stocks April 24 were 82,303,000 barrels, 8,599,000 barrels above stocks April 24, 1936.

Estimated total gas and fuel oil stocks April 24 stood at 94,100,000 barrels, down 372,000 barrels from April 17 and 3,428,000 barrels below stocks April 24, 1936.

CURRENT REFINERY OPERATIONS

Districts	Per Cent Capacity Reporting	Daily Average Crude to Stills (Barrels) Week Ended		Per Cent of Reporting Capacity Operated Week Ended		Stocks Thousands of Barrels: Total Finished and Unfinished Motor Fuel*		Stocks Thousands of Barrels: Total Finished and Unfinished Motor Fuel*		Stocks Thousands of Barrels: Gas & Fuel Oil		Cracked Gasoline Production: % Total Capacity Reporting	Cracked Gasoline Production: Daily Av. Production (Barrels) Week Ended	
		Apr. 24	Apr. 17	Apr. 24	Apr. 17	Apr. 24	Apr. 17	Apr. 24	Apr. 17	Apr. 24	Apr. 17		Apr. 24	Apr. 17
East Coast	100.0	543,000	514,000	81.2	76.8	18,804	18,544	5,854	5,709	100.0	113,000	107,000		
Appalachian	88.4	110,000	106,000	85.3	82.2	2,818	2,869	530	513	94.6	26,000	26,000		
Ind., Ill., Ky.	92.1	434,000	436,000	92.9	93.4	14,407	14,454	4,477	4,411	98.5	132,000	125,000		
Okla., Kans., Mo.	84.6	310,000	284,000	81.6	74.7	9,537	9,490	2,866	2,850	90.3	73,000	68,000		
Inland Texas	54.3	110,000	129,000	60.1	70.5	2,234	2,230	1,255	1,320	68.7	28,000	30,000		
Texas Gulf	95.5	692,000	660,000	91.4	87.2	10,710	11,080	6,370	6,532	98.0	153,000	153,000		
La. Gulf	96.3	125,000	127,000	79.1	80.4	1,489	1,521	1,616	1,633	100.0	31,000	27,000		
No. La., Ark.	63.7	55,000	45,000	94.8	77.6	473	446	304	220	77.5	8,000	8,000		
Rocky Mt.	69.7	41,000	42,000	66.1	67.7	2,033	2,052	719	727	85.4	13,000	12,000		
California	90.9	482,000	488,000	64.6	65.4	14,380	14,599	67,613	68,061	98.0	82,000	77,000		
Total Reporting	88.8	2,902,000	2,831,000	80.4	78.4	76,885	77,285	91,604	91,976	94.7	659,000	633,000		
Estimated U. S. Total (Bur. of Mines Basis)		3,125,000	3,055,000			82,303	82,703	94,100	94,472		715,000	690,000		

*Includes stocks at refineries, in bulk terminals, pipe lines and in transit.

High Spots of Next Week's Meetings

Coming Meetings

General Expositions

The Greater Texas and Pan American Exposition, Dallas, June 12 to Oct. 31.

The Great Lakes Exposition, Lake Front, Cleveland, Ohio, May 29 to Sept. 6.

Oil Meetings

Pennsylvania Natural Gas Men's Association, Pennsylvania State College, State College, Pa., April 30 to May 1.

Society of Automotive Engineers, summer meetings, Greenbrier Hotel, White Sulphur Springs, W. Va., May 4 to 9.

American Petroleum Institute, Division of Production, Eastern District, Deshler-Wallick Hotel, Columbus, Ohio, May 6 and 7.

Fuel Oil Distributors Association of New Jersey, Berkeley-Carteret Hotel, Asbury Park, N. J., May 6 and 7.

American Gas Association, Natural Gas Dept., Kansas City, Mo., May 10 to 15.

Natural Gasoline Association of America, Hotel Tulsa, Tulsa, Okla., May 19, 20 and 21.

National Association of Purchasing Agents (Oil Company Buyers Group), annual convention, William Penn Hotel, Pittsburgh, Pa., May 23 to 27.

National Oil Well Superintendents Association, Fort Worth, Texas, May 26, 27 and 28.

American Petroleum Institute, Mid-Year Meeting, Broadmoor Hotel, Colorado Springs, Colo., June 1, 2, 3.

Oil Field, Gas Well-Refinery Worker of America, Kansas City, Mo., June 7.

Pennsylvania Grade Crude Oil Association, annual meeting, on Great Lakes S. S. "Seeandbee," sailing from Buffalo, N. Y., June 10, 11 and 12.

Index to Advertisers

This index is published as a convenience to the reader. Every care is taken to make it accurate, but National Petroleum News assumes no responsibility for errors or omissions

American Telephone & Telegraph Co. 41

Bowser & Co., Inc., S. F.... 45

Cities Service Co. 51
Classified Advertising 40
Crown Can Co. 5
Cushing Refining & Gasoline Co. 57

Danciger Oil & Refineries, Inc. .....Third Cover

Esso, Inc. 59

Four Wheel Drive Auto Co... 1

Gulf Refining Co. 7

International Harvester Co. of America 3

Kellogg Co., M. W..... 60
Kidde & Co., Inc., Walter.... 58

Lion Oil Refining Co..... 2

Micro-Westco, Inc. 59
Morrison Bros. 56

National Petroleum News... 56

Ohio Oil Co. 29

Peerless Electric Co. 49
Penola, Inc. 42
Philadelphia Valve Co..... 4

Roper Corp., Geo. D..... .....Second Cover

Sharples Specialty Co. 69
Sinclair Refining Co., Inc.... 46
Sun Oil Company..Fourth Cover

Trailer Co. of America, The 6

United Oil Mfg. Co..... 56
Universal Oil Products Co... 65

Viking Pump Co. 72

Society of Automotive Engineers, Summer Meeting, The Greenbrier, White Sulphur Springs, W. Va., May 4 to 9.

May 5, 8:30 P. M.:

"Crankcase Oil Temperature Control", by E. W. Templin, Los Angeles Department of Water and Power.

May 6, 9:30 P. M., Lubricants Session:

"High Oiliness—Low Wear?" by G. L. Neely, Standard Oil Co. of California.

"High Pressure Viscosity as an Explanation of Apparent Oiliness", by H. A. Everett, Pennsylvania State College.

May 7, 9:30 A. M., Gadgets Session:

"A Springless Bouncing Pin Indicator", by Earl Bartholomew and Cleveland Walcutt, Ethyl Gasoline Corp.

"The Sunbury Knock Indicator", by Richard Stansfield, Anglo-Iranian Oil Co., London. (To be presented by J. R. Sabina).

"Spark Advance Indicator", by J. R. MacGregor and K. R. Eldredge, Standard Oil Co. of California.

"Automatic Speed-Load Dynamometer Control", by J. R. MacGregor and L. T. Folsom, Standard Oil Co. of California.

May 8, 9:30 A. M., Hypoid Gears:

"Hypoid Gears, Axles and Lubricants", by W. A. Witham, Gleason Works.

"Need for Simplifying Recommendations of Transmission and Rear Axle Lubricants", by C. M. Larson, Sinclair Refining Co., New York.

Diesel Engine Session:

"Report of Volunteer Group for Compression Ignition Fuel Research", by T. B. Rendel, Shell Petroleum Corp.

"Behavior of High and Low Cetane Diesel Fuels", by R. A. Rose and G. C. Wilson, University of Wisconsin.

American Petroleum Institute, Eastern District, Division of Production, Deshler-Wallick Hotel, Columbus, Ohio, May 6, 7.

"The Tax Situation in Our Industry", by Axtell J. Byles, president, American Petroleum Institute.

"Future Possibilities of Michigan Oil and Gas Production", by Dr. Virgil Kirkham, Saginaw, Mich.

"The Use of Prepared Mud and Oil Well Cementing in Eastern United States", by C. P. Parsons, Halliburton Cementing Co., Duncan, Okla.

"Prospect of Deep Production in the Illinois Basin", by Theron Wasson, The Pure Oil Co., Chicago.

"Use of Geophysical Methods in Oriskany Production", by L. E. Randall, Charleston, W. Va.

"Rotary Drilling in the East", by Frank M. Brewster, President, Belmont Drilling Corp., Bradford, Pa.

"The Oil Industry in Kentucky", by Paul Blazer, Ashland Refining Co., Ashland, Ky.

Fuel Oil Distributors Assn. of New Jersey, Second Annual Convention, Asbury Park, N. J., May 6, 7.

"New Legislation Relative to Fuel Oil", by Harry A. Walsh, Assistant Attorney General of New Jersey.

"Fuel Oil of the Future", by Dr. R. T. Goodwin, Shell Union Petroleum Corp., New York.

"Degree Day Deliveries", by W. T. Dette, Home Fuel Oil Co.

Contents

NEWS

No Need for Federal Oil Control, Ickes Testifies 9
Tailor Gasoline to Suit Seasons ASTM Proposes 9
Method Presented Refiners for Evaluating Reforming 9
2 Unions, in Parleys with Oil Firms, Form Alliance 10
Financial Aid to Employe Groups is Discontinued 11
Weight of Under 6.6 Lbs. Is Used by U. S. Agencies 12
Proposed Bill May Tax Crude in Pennsylvania 12
Court Removes Oath of Secrecy in Madison Case 13
Editorials 14
Higher Oil Prices 14
Two Notable Addresses. 14
President Recounts Early Days of Western Refiners' Ass'n..... 16
Necessity for Clean Fuel Told by Diesel Engineers 17
Texas Workers Doubtful About Joining New Unions 20
Southwest's Crude Production is Exceeding Current Demand 21
Mid-Continent Gasoline Shipments Show Sharp Increase in March.... 22
Pipeline Firm Rebuilds System 22
Mid-Continent Bright Stock Demand Up 22

MARKETS

Pennsylvania 25
Mid-Continent 25
Chicago 26
California 26
Eastern 30
Fuel Oil 30
Coastal 36
Wax 36
Refinery Tank Car Markets 27, 28, 31
Tank Wagon, Service Station Markets..32, 33, 34
Seaboard Markets....35, 36
Crude Oil Markets....37, 38

MERCHANDISING

Woman Marketer in Michigan 43
Care, Maintenance and Abandonment of Underground Station Tanks—*by J. M. Klipfel* 47
Michigan Welcomes Its Tourists at Lodges Along Main Highways 53
Gasoline Taxed Six Billions in U. S. Since 1919 54
Motor Fuel Stocks Menace Price Structure, Seubert Says 58
Tide Water Reports 25% Increase in First Quarter, 1937 58

TECHNICAL

Some More Recent Trends in Cracking and Polymerization... 61
Economics of Gasoline Treating Undergoing Rapid Revision—*by P. S. Nisson* and *W. B. Ross* 63
Treating Light Distillates by the PbS Process—*by D. B. Nutt* and *J. A. Altshuler*... 67
Canadian Bureau of Mines Issues Results of Fuel Oil Analyses.. 71

DEPARTMENTS

Mid-Continent Skyline.. 15
Washington Crown Block 18
New Equipment 44
New Books 56
New Patents 57

Markets

Widespread Improvement Features Refinery Markets

N. P. N. News Bureau

CLEVELAND, April 26

WIDESPREAD improvement, both in demand and prices, featured refinery tank car markets generally the third week in April. Shipments of gasoline and lubricating oils against contracts were heavy and increased open market demand was reported in many markets.

Retail gasoline markets for the most part were steady. There were rumblings of price cutting in some areas of the middle west but there were no open breaks in service station prices. There was substantial improvement in the northern New Jersey retail market. Prices were up as much as 3 cents a gallon at some points. The market in this area had been demoralized for some time.

Gasoline was steady to firm in the majority of tank car markets. Pennsylvania low octane prices were up 0.125 cent last week, bringing the total advance to 0.875 cent in the last three weeks, and the higher octane grades were up 0.25 cent. Export gasoline prices at the Gulf were up 0.125 cent.

Kerosine tank car prices were tending higher in the Mid-Continent and Mid-Western markets. Pennsylvania prices were down 0.125 cent and export prices at the Gulf were off 0.25 cent.

Lubricating oils remained tight in Pennsylvania where neutrals were up 1 cent a gallon. Shipments from the Mid-Continent were heavy.

There was an unusually heavy spring demand for natural gasoline in the Mid-Continent. Buyers were bidding toward a higher market.

Pennsylvania

Neutrals and Gasoline Higher

N. P. N. News Bureau

CLEVELAND, April 26

● Considerably more active trading was reported in the western Pennsylvania refinery market in the week ended April 24. Price changes for the most part were on the upside with gasoline, neutral oils and wax showing substantial gains. Kerosine was the only easier item in the refined oil list.

Demand for gasoline was brisk throughout the week. Prices for U. S. Motor were up 0.125 cent and the higher octane grades advanced 0.25 cent. Refiner and resellers alike reported it was practically impossible to satisfy the demand, particularly for U. S. Motor.

In less than a month, the ordinary U. S. Motor gasoline, which is now used largely as a blending stock, has switched from an extremely distressed position to one of moderate strength. Prices in that period have risen 0.875 cent. At 4.5 cents a gallon, U. S. Motor was going begging. Last week sellers reported they were having no trouble in getting 5.375 cents as the week ended. At least two refiners reported being sold up for the balance of April.

The scarcity which has prevailed on neutral oils became even more acute last week. Prices were up 0.5 cent on the 150 viscosity No. 3 color oils, and 1 cent on all other grades. Buyers bidding 26 cents for 25 pour test 200 oil said they had no success in obtaining offers. Not until they bid 26.5 cents, 1 cent above last previously paid price, were they successful in drawing out material. At least seven cars of this grade were reported sold at 26.5 cents a gallon.

Bright stock appeared firm at prices which have prevailed for the last few weeks but the product was not as difficult to obtain as it was a month ago. Some grades of dark cylinder stock, particularly 600 steam refined, also were easier to obtain, while at the same time some of the higher flash oils remained tight and prices were higher.

Kerosine was slow and prices were down 0.125 cent in both the upper and lower districts of the field. Buyers showed little interest in kerosine regardless of price.

N. P. N. Gasoline Index

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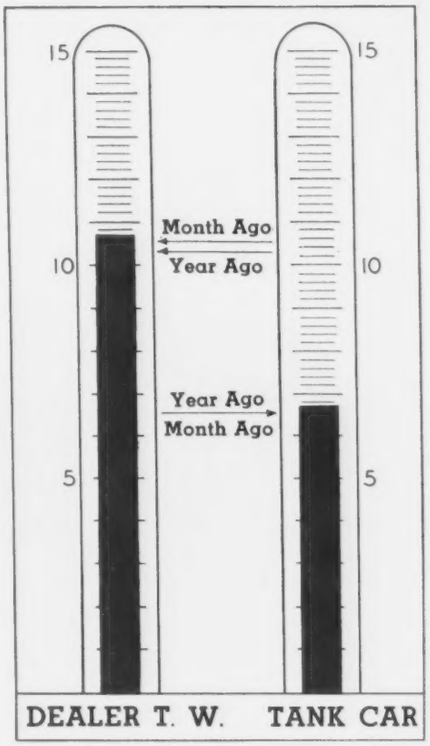


Dealer index is an average of "undivided" dealer prices, ex-tax, in 50 cities. Tank car index is a weighted average of 13 wholesale markets for regular-grade gasoline. The gasoline price index this week represents the following prices in cents per gallon:

	Dealer T. W.	Tank Car
April 26	10.65	6.64
Month ago	10.58	6.48
Year ago	10.30	6.53

Mid-Continent

Natural More Active

N. P. N. News Bureau

TULSA, April 26

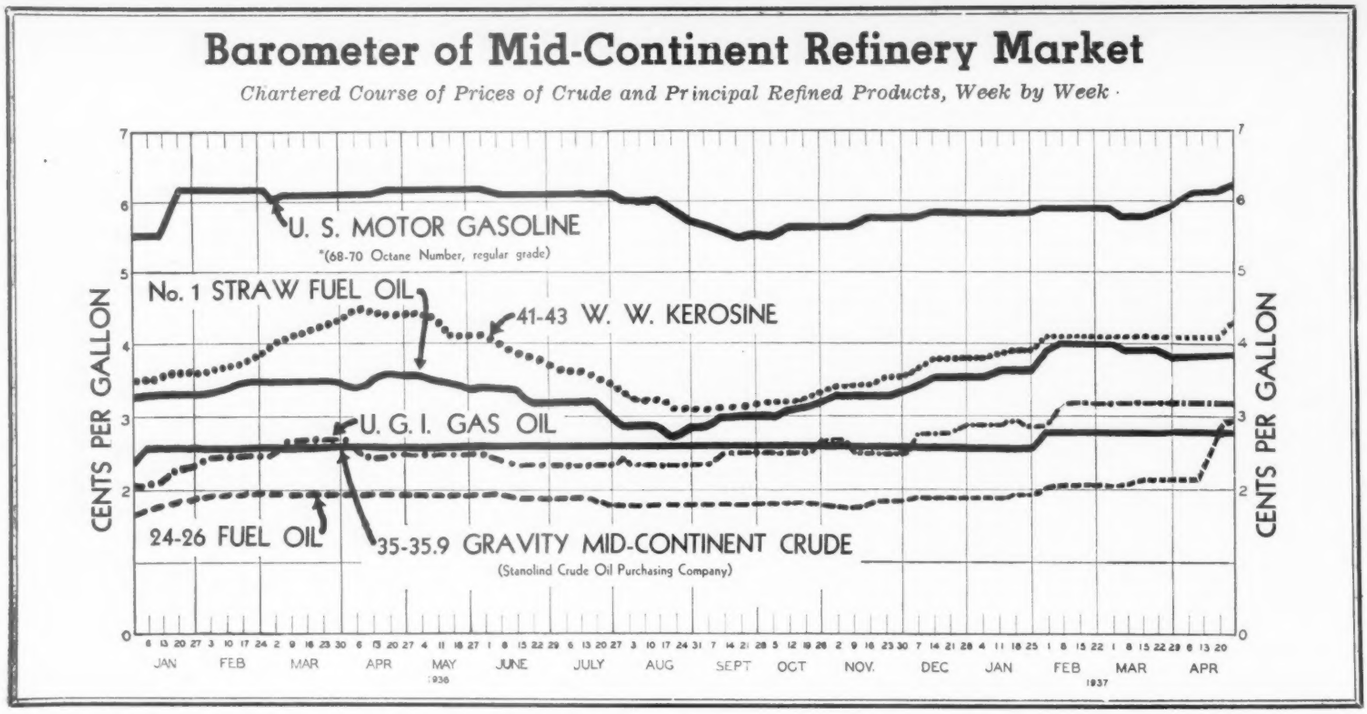
● Increased inquiry for Texas natural gasoline for immediate and future delivery sent Grade 26-70 prices up 0.125 cent last week. This brought Texas prices above those in Oklahoma, thereby permitting shipment of Oklahoma supplies south to the Gulf Coast.

Three factors were responsible for increased demand for natural gasoline for Southern Texas shipment. An active demand for refined gasoline at the Gulf Coast has necessitated increased use of natural in cargo shipments. Another factor was the practice of dumping natural gasoline into pipelines to pep up crude oil. There was also increased use of natural to raise the octane rating of motor fuel, some reports indicated.

At least two large manufacturers were buying in the open market to supplement their own output of natural gasoline. They wanted material for both immediate and future delivery. Many other inquiries also have been received for May delivery. One called for 300 cars of natural for Gulf Coast shipment. Numerous calls for "any amount" of natural, no matter what grade, were received last week.

The so-called "temporary shortage" on natural gasoline in Texas has been attributed by observers to substantial increase in refined gasoline output both at inland and Gulf Coastal refineries. Natural gasoline output has failed so far to increase proportionately with refinery runs.

An 0.125-cent advance in Texas natural


Barometer of Mid-Continent Refinery Market
Chartered Course of Prices of Crude and Principal Refined Products, Week by Week
U. S. MOTOR GASOLINE
*(68-70 Octane Number, regular grade)
No. 1 STRAW FUEL OIL
41-43 W. W. KEROSINE
U. G. I. GAS OIL
24-26 FUEL OIL
35-35.9 GRAVITY MID-CONTINENT CRUDE
(Stanolind Crude Oil Purchasing Company)
CENTS PER GALLON
CENTS PER GALLON
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV. DEC JAN FEB MAR APR
1936
1937

*This was formerly 63-70 octane; changed April 15, 1936.

gasoline prices last week failed to bring supplies out of storage as one or two buyers had believed it would. Manufacturers were hesitant about selling May output at market price date of shipment. At least one seller in the Panhandle was asking that buyers equalize a small freight differential.

With an 0.125-cent differential between f.o.b. Group 3 and f.o.b. Breckenridge prices, any surplus supplies of natural gasoline in Oklahoma were expected to be sold for Gulf Coast shipment. As the week ended, some sales of Oklahoma Grade 26-70 were being made at 3.25 cents.

Refined gasoline prices were steady throughout the week, with some refiners indicating higher quotations for the last week of April. Resellers reported it was difficult to obtain gasoline at prices that enabled them to resell profitably at current general market quotations.

East Texas gasoline still was difficult to obtain, according to most buyers. Output in this district, available for unrestricted shipment, has been cut considerably over the past several months. This has been partially substantiated by Federal Tender Board reports of coastwise, intrastate and interstate shipments from East Texas. Largest single sale of East Texas 400 e.p. gasoline last week was 100 cars sold to an independent buyer for coastwise shipment. Price paid was 5.25 cents, f.o.b. refinery.

Kerosine movement was livelier as plowing got under way in the north. Several Oklahoma refiners advanced prices for the 41-43 grade 0.125 cent, although this advance was not general.

For the past two months Mid-Continent manufacturers have reported increased movement of lubricating oil. These reports were substantiated late in the week by Western Petroleum Refiners Association's March statistical review of lubricating oil operations. Report showed substantial increase in shipments and greatly reduced inventories.

Chicago

Gasoline Demand Better

N. P. N. News Bureau
CHICAGO, April 26

● Featuring the Mid-Western tank car gasoline market the week ending April 24 was an increase in open market sales and shipments to contract customers which combined to bring about the most active market that has been experienced here since early last fall.

Despite the increase in open market sales and contract shipments, prices moved within narrow, although firm, ranges.

One seller reported the sale of 26 cars of low octane Motor in the open market April 21 at 5 cents. Other sales generally were held to at least this figure.

Unleaded U. S. Motor, 68 to 70 octane, brought upwards from 5.75 cents, while leaded gasoline in this range commanded 0.125 to 0.25 cent more.

Price shading was at a minimum on all grades of gasoline. Several unconfirmed reports of offerings of 68 to 70 octane gasoline at 0.125 and 0.25 cent under published lows were heard, however.

A marked division of thought regarding market future was apparent among traders here. Many were inclined to consider present stocks of gasoline as merely adequate for summer demand, and with offerings limited as they have continued the past several weeks, they were expecting higher prices.

Others believed refinery gasoline stocks to be excessive, and when coupled with the present rate of crude throughput, a threat to market prices. They generally reported they could not see higher prices, without a substantial cut in crude runs.

Despite present refinery stocks of gasoline which have resulted in leaders of the industry cautioning about their possible effects on future markets, the excesses have not yet ushered in any attempted liquidation. Offerings were in fair balance with takings last week.

Farmers were getting into the field in many parts of the middle west. This added demand for petroleum products undoubtedly played its share in the increase in gasoline sales and shipments last week. Sellers here reported an increasing sale of third grade gasoline for the farm market.

Supplies of gasoline from East Texas and Louisiana were only nominal factors here. Shipments of Pennsylvania low octane gasoline, in competition with offerings from the Group, were limited to parts of Indiana and eastward. Trade channels of Michigan gasoline were well defined, and material from this district was not competitive in normal Group 3 selling territory.

Kerosine was steady. This product remained "rubber stamped in price," as put by one trader. All sellers here asked at least 4.125 cents for 41-43 grade last week. Not many were asking above this figure.

California

Price Trends Mixed

N. P. N. News Bureau
LOS ANGELES, April 23

● Price movements the past week were conflicting on Pacific Coast petroleum markets and no definite trends were indicated.

Kerosine-distillate prices at independent plants in the Los Angeles Basin were easier; fuel oil prices were easier in both

REFINERY TANK CAR MARKETS

Prices in cents per gallon, tank car lots, except where otherwise noted. Inter-refinery and export prices not included. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude.

Gasoline *and* Naphtha

OKLAHOMA (Prices represent majority of quotations or sales, f.o.b. Oklahoma refineries)

U. S. Motor gasoline, by octane numbers:

	April 26	April 19	April 12
62 octane and below	5.125– 5.25	5.00 – 5.25	5.00 – 5.25
63-67 octane	5.50	5.375– 5.50	5.375– 5.50
68-70 octane (regular)	6.125– 6.25	6.00 – 6.25	6.00 – 6.25
60-62, 400 e.p. gasoline	5.125– 5.25	5.00 – 5.25	5.00 – 5.25
64-66, 375 e.p. gasoline	*5.25 – 5.375	*5.125– 5.375	*5.125– 5.375
68-70, 350-360 e.p. gasoline	*5.25 – 5.625	*5.125– 5.625	*5.125– 5.625

*Nominal.

WESTERN PENNA. (Prices represent majority of quotations or sales)

Bradford-Warren:			
52-54 naphtha	5.25 – 5.375	5.00 – 5.125	5.00 – 5.125
Motor gasoline:			
U.S. Motor (58-62°)	5.375– 5.50	5.00 – 5.125	5.00 – 5.125
Minimum 60 octane	*6.875– 7.00	*6.875– 7.00	*6.875– 7.00
Minimum 65 octane	*7.125– 7.25	*7.125– 7.25	*7.125– 7.25
64-66, 390 e.p. gasoline	5.375– 5.50	5.125– 5.25	5.125– 5.25
68-70, 350-360 e.p. gasoline	5.625– 5.75	5.375– 5.50	5.375– 5.50
*Nominal.			
Other districts:			
52-54 naphtha	5.125– 5.25	4.875– 5.00	4.875– 5.00
54-56 naphtha	5.25 – 5.375	5.00 – 5.125	5.00 – 5.125
Motor gasoline:			
U. S. Motor (58-62°)	5.375– 5.50	5.00 – 5.125	5.00 – 5.125
Minimum 60 octane	6.875– 7.00	6.625– 6.875	6.625– 6.875
Minimum 65 octane	7.00 – 7.125	6.75 – 7.00	6.75 – 7.00
64-66, 390 e.p. gasoline	5.375– 5.50	5.125– 5.25	5.125– 5.25
68-70, 350-360 e.p. gasoline	5.625– 5.75	5.375– 5.50	5.375– 5.50

CALIFORNIA (3c tax to be added to prices if used in state)

54-58 U. S. Motor, 437 e.p. for in-state shipment	8.00 – 9.25	8.00 – 9.25	8.00 – 9.25
54-58 U. S. Motor, 437 e.p. for outside state shipment	8.25 – 9.25	8.25 – 9.25	8.50 – 9.25
58-61, 375-400 e.p. gasoline, 65 octane and above	8.50 – 9.75	8.50 – 9.75	8.50 – 9.75

†NORTH TEXAS (Prices represent majority of quotations or sales, F.o.b. Wichita Falls district for shipment to Texas and New Mexico destinations; Group 3 prices quoted on northern shipments).

U. S. Motor gasoline, by octane numbers.

62 octane and below	5.125– 5.375	5.00 – 5.25	5.00 – 5.25
63-67 octane	5.50 – 5.625	5.375– 5.50	5.375– 5.50
68-70 octane (regular)	6.00 – 6.375	5.875– 6.25	5.875– 6.25
60-62, 400 e.p. gasoline	*5.125– 5.375	*5.00 – 5.25	*5.00 – 5.25

*Nominal.

KANSAS (F.o.b. refinery, Kansas destination)

U. S. Motor gasoline, by octane numbers:

62 octane and below	5.25 – 5.625	5.25 – 5.625	5.25 – 5.625
68-70 octane (regular)	6.25 – 6.625	6.25 – 6.625	6.25 – 6.625

†WEST TEXAS and NEW MEXICO (Prices represent majority of quotations or sales, F.o.b. W. Texas and N. Mexico refineries for unrestricted shipment unless otherwise noted.)

U. S. Motor gasoline, by octane numbers:

62 octane and below	5.125	5.00 – 5.125	5.00 – 5.125
63-67 octane	5.50	5.375– 5.50	5.375– 5.50
68-70 octane (regular)	6.125	6.00 – 6.125	6.00 – 6.125

†EAST TEXAS (Prices represent majority of quotations or sales, F.o.b. East Texas refinery for unrestricted shipment unless otherwise noted).

60-62, 400 e.p. gasoline	*5.25 – 5.375	*5.25	*5.125– 5.25

*Nominal.

NORTH LOUISIANA (Prices represent majority of quotations or sales, f.o.b. Louisiana refineries, for shipment within Louisiana and into Arkansas).

U. S. Motor gasoline:

62 octane and below	5.50	5.50	5.50
63-67 octane	5.75	5.75	5.75
68-70 octane (regular)	6.25	6.25	6.25

†Refiners report they generally receive from 0.25c to 0.5c per gallon more for gasoline and kerosine for local or differential territory shipment.

ARKANSAS (Prices represent majority of quotations or sales, f.o.b. Arkansas refineries, for shipment within Arkansas and into Louisiana).

U. S. Motor Gasoline:

62 octane and below	5.50	5.50	5.25
63-67 octane	6.00	6.00	6.00

OHIO (Quotations of S. O. Ohio. Delivered any point in Ohio).

U. S. Motor gasoline	8.75	8.75	8.75
Above 65 octane no	9.00	9.00	9.00

Natural Gasoline

(Prices shown f.o.b. Group 3 and Breckenridge represent majority of quotations or sales to blenders on freight basis shown below. Shipments, however, may originate in other Mid-Continent manufacturing districts, such as Panhandle Texas, Southwest Texas or Kansas.)

F.O.B. GROUP 3			
Grade 26-70	3.125– 3.25	3.125	3.125
F.O.B. BRECKENRIDGE			
Grade 26-70	3.25	3.125	3.125
CALIFORNIA (F.o.b. plants in Los Angeles basin)			
75-85, 375-390 e.p. for blending	7.25 – 7.75	7.25 – 7.75	7.25 – 7.75

Kerosine

WESTERN PENNA. (Prices represent majority of quotations or sales).

Bradford-Warren:			
45 w.w. kerosine	4.75 – 5.00	4.875– 5.00	4.875– 5.00
46 w.w. kerosine	4.875– 5.125	5.00 – 5.125	5.00 – 5.125
47 w.w. kerosine	5.00 – 5.25	5.125– 5.25	5.125– 5.25
Other districts:			
45 w.w. kerosine	4.75 – 5.00	4.875– 5.00	4.875– 5.00
46 w.w. kerosine	4.875– 5.125	5.00 – 5.125	5.00 – 5.125
47 w.w. kerosine	5.00 – 5.25	5.125– 5.25	5.125– 5.25

OKLAHOMA (Prices represent majority of quotations or sales, f.o.b. Oklahoma refineries).

41-43 w.w. kerosine	4.25 – 4.375	4.125– 4.375	4.125– 4.375
42-44 w.w. kerosine	4.375– 4.50	4.375– 4.50	4.25 – 4.50

KANSAS (F.o.b. refinery Kansas destination).

41-43 w.w. kerosine	4.375– 4.50	4.375– 4.50	4.375– 4.50
42-44 w.w. kerosine	4.50 – 4.75	4.50 – 4.75	4.50 – 4.75

†NORTH TEXAS (Prices represent majority of quotations or sales, f.o.b Wichita Falls district for shipment to Texas and New Mexico destinations; Group 3 prices quoted on northern shipments).

41-43 w.w. kerosine	4.375	4.375	4.375

†EAST TEXAS (Prices represent majority of quotations or sales, f.o.b. East Texas refinery for unrestricted shipment unless otherwise noted).

41-43 w.w. kerosine	*4.00 – 4.125	*4.00 – 4.125	*4.00 – 4.125

*Nominal.

NORTH LOUISIANA (Prices represent majority of quotations or sales, f.o.b Louisiana refineries, for shipment within Louisiana and into Arkansas).

41-43 w.w. kerosine	4.375	4.375	4.375

ARKANSAS (Prices represent majority of quotations or sales, f.o.b. Arkansas refineries, for shipment within Arkansas and into Louisiana).

41-43 w.w. kerosine	†4.75	†4.75	†4.75

†Only one refiner quoting.

CALIFORNIA (F.o.b. California refineries).

38-40 w.w. kerosine	5.00 – 6.00	5.00 – 6.00	5.00 – 6.00

Gas and Fuel Oils

WESTERN PENNA. (Prices represent majority of quotations or sales).

Bradford-Warren:			
36-40 fuel oil	*4.25 – 4.50	*4.25 – 4.50	*4.25 – 4.50
Other districts: (Excluding Pittsburgh District Prices).			
36-40 fuel oil	4.125– 4.25	4.125– 4.25	4.125– 4.25

*Nominal.

OKLAHOMA (Prices represent majority of quotations or sales, f.o.b. Oklahoma refineries).

No. 1 white fuel oil	3.875– 4.00	3.875– 4.00	3.875– 4.00
No. 1 straw fuel oil	3.75 – 3.875	3.75 – 3.875	3.75 – 3.875
No. 2 straw fuel oil	3.50 – 3.625	3.50 – 3.625	3.50 – 3.625
No. 2 dark fuel oil	3.375– 3.625	3.375– 3.625	3.375– 3.625
U. G. I. gas oil	*3.25	*3.25	*3.25

*Only one refiner quoting.

(*Continued on next page*)

REFINERY TANK CAR MARKETS

Prices in cents per gallon, tank car lots, except where otherwise noted. Inter-refinery and export prices not included. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude.

Oklahoma (cont'd)

	April 26	April 19	April 12
Fuel Oils: (Prices per barrel of 42 U. S. gallons)			
28-30 zero	3.375- 3.50	3.375- 3.50	3.375- 3.50
28-30	†$1.25	†$1.25	†$1.25
24-26	$0.925	$0.925	$0.90
18-22	*$0.825-$0.90	*$0.825-$0.90	*$0.825-$0.90
14-16	*$0.80 -$0.85	*$0.80 -$0.85	*$0.80 -$0.85

†Only one refiner quoting.
*Nominal.

KANSAS (F.o.b. refinery, Kansas destination)

No. 1 p.w. fuel oil	4.25	4.25	4.25
10-14 fuel oil (per bbl.)	$0.775-$0.85	$0.775-$0.85	$0.775-$0.85

NORTH TEXAS (Prices represent majority of quotations or sales, f.o.b. Wichita Falls district for shipment to Texas and New Mexico; Group 3 prices quoted on northern shipments).

No. 1 white, fuel oil	*4.00	*4.00	*3.875- 4.00
U.G.I. gas oil	2.75	2.75	2.75
24-26 fuel oil (per bbl.)	$0.85 -$0.875	$0.85 -$0.875	$0.85 -$0.875
18-22 fuel oil (per bbl.)	$0.80 -$0.825	$0.80 -$0.825	$0.80 -$0.825

*Nominal.

EAST TEXAS (Prices represent majority of quotations or sales, f.o.b. East Texas refineries for unrestricted shipment unless otherwise noted).

No. 1 white, fuel oil	.....	.....	*3.875- 4.00

*Nominal.

NORTH LOUISIANA (Prices represent majority of quotations or sales f.o.b. Louisiana refineries, for shipment within Louisiana and into Arkansas).

No. 2 fuel oil	3.375- 3.50	3.375- 3.50	3.375- 3.50
20-24 fuel oil (per bbl.)	$1.10 -$1.15	$1.10 -$1.15	$1.10 -$1.15
16-20 fuel oil (per bbl.)	$0.95 -$1.00	$0.95 -$1.00	$0.95 -$1.00
10-14 fuel oil (per bbl.)	$0.75 -$0.80	$0.75 -$0.80	$0.75 -$0.80

ARKANSAS (Prices represent majority of quotations or sales, f.o.b. Arkansas refineries, for shipment within Arkansas and into Louisiana).

No. 2 fuel oil	*3.625	*3.625	*3.625
28-30 gas oil, zero	*3.50	*3.50	*3.50
10-14 fuel oil (per bbl.)	$0.70	$0.70	$0.70

*Only one refiner quoting.

CALIFORNIA

San Joaquin Valley, per bbl.:			
Grade C fuel oil	$0.70 -$0.85	$0.70 -$0.85	$0.65 -$0.85
Diesel fuel oil	$1.10 -$1.68	$1.10 -$1.68	$1.10 -$1.68
Stove distillate	$1.47 -$2.10	$1.47 -$2.10	$1.47 -$2.10
Los Angeles, per bbl.:			
Grade C fuel oil	$0.70 -$0.85	$0.75 -$0.85	$0.75 -$0.85
Diesel fuel	$1.10 -$1.68	$1.10 -$1.68	$1.10 -$1.68
Stove distillate	$1.05 -$2.10	$1.15 -$2.10	$1.26 -$2.10
San Francisco, per bbl.:			
Grade C fuel oil	$1.22	$1.22	$1.22
Diesel fuel	$1.89	$1.89	$1.89
Stove distillate	$2.31	$2.31	$2.31

Neutral Oils

WESTERN PENNA. (Prices represent majority of quotations or sales).

Viscous Neutrals (*Viscosity at 70° F.*)

200 Vis. (180 at 100°) No. 3 color, 420-425 flash:			
0 pour test	29.00 -29.50	28.00 -28.50	28.00 -28.50
10 pour test	28.00 -28.50	27.00 -27.50	27.00 -27.50
15 pour test	27.50 -28.00	26.50 -27.00	26.50 -27.00
25 pour test	26.50 -27.00	25.50 -26.00	25.50 -26.00
180 Vis. (165 at 100) No. 3 color, 410-415 flash:			
25 pour test	25.00 -25.50	24.00 -24.50	24.00 -24.50
150 Vis. (143 at 100) No. 3 color, 400-405 flash:			
0 pour test	24.50 -25.00	24.00 -24.50	24.00 -24.50
10 pour test	23.50 -24.00	23.00 -23.50	23.00 -23.50
15 pour test	23.00 -23.50	22.50 -23.00	22.50 -23.00
25 pour test	22.00 -22.50	21.50 -22.00	21.50 -22.00

SOUTH TEXAS (Quotations of majority of sellers for tank car lots, f.o.b. South Texas refineries, for domestic shipment).

Vis. Color			
Pale Oils:	(*Viscosity at 100° F.; pour test 0*)		
100 No. 1½-2½	5.25 - 5.50	5.25 - 5.50	5.25 - 5.50
200 No. 2-3	7.25 - 7.50	7.25 - 7.50	7.25 - 7.50
300 No. 2-3	7.75 - 8.00	7.75 - 8.00	7.75 - 8.00
500 No. 2½-3½	8.75 - 9.00	8.75 - 9.00	8.75 - 9.00
750 No. 3-4	9.25 - 9.50	9.25 - 9.50	9.25 - 9.50
1200 No. 3-4	9.75 -10.00	9.75 -10.00	9.75 -10.00
2000 No. 4	10.00 -10.25	10.00 -10.25	10.00 -10.25

	April 26	April 19	April 12
Red Oils:			
200 No. 5-6	7.25 - 7.50	7.25 - 7.50	7.25 - 7.50
300 No. 5-6	7.75 - 8.00	7.75 - 8.00	7.75 - 8.00
500 No. 5-6	8.75 - 9.00	8.75 - 9.00	8.75 - 9.00
750 No. 5-6	9.25 - 9.50	9.25 - 9.50	9.25 - 9.50
1200 No. 5-6	9.75 -10.00	9.75 -10.00	9.75 -10.00
2000 No. 5-6	10.00 -10.25	10.00 -10.25	10.00 -10.25

Note: South Texas red oil prices shown above cover oils with green cast; blue cast red oils are slightly lower in some cases.

MID-CONTINENT (Viscosity at 100° F.; F.o.b. Tulsa basis. Prices represent majority of quotations or sales).

(0 to 10 Pour Point)

Pale Oils			
Vis. Color			
60-85—No. 2	5.50	5.50	5.50
86-110—No. 2	6.00	6.00	6.00
150—No. 3	9.00	9.00	9.00
180—No. 3	10.00	10.00	10.00
200—No. 3	10.50	10.50	10.50
250—No. 3	11.50	11.50	11.50
280—No. 3	12.50	12.50	12.50
300—No. 3	13.00	13.00	13.00
Red Oils:			
180—No. 5	9.00	9.00	9.00
200—No. 5	9.50	9.50	9.50
250—No. 5	10.50	10.50	10.50
280—No. 5	11.50	11.50	11.50
300—No. 5	11.75	11.75	11.75

Note: Viscous oils, 15-25 pour point, generally are quoted 0.5c under 0-10 pour point oils. Non-viscous oils, 15-25 pour point generally are quoted 0.25c under 0-10 pour point oils. Viscous oils (150-300 vis.), No. 4 color, generally are quoted 0.5c above No. 5 color oils. Prices represent majority of quotations or sales.

CHICAGO (F.o.b. Chicago District refineries) (Vis. at 100° F.).

Pale Oils *0 to 10 pour point:			
Vis. Color			
60-85—No. 2	7.25	7.25	7.25
86-110—No. 2	7.75	7.75	7.75
150—No. 3	10.00	10.00	10.00
180—No. 3	11.00	11.00	11.00
200—No. 3	11.50	11.50	11.50
250—No. 3	12.50	12.50	12.50
Red Oils *0 to 10 Pour Point:			
180—No. 5	10.00	10.00	10.00
200—No. 5	10.50	10.50	10.50
250—No. 5	11.50	11.50	11.50
280—No. 5	12.50	12.50	12.50
300—No. 5	12.75	12.75	12.75

*Viscous oils, 15 to 30 pour point are quoted 0.5c lower. 60-85 and 86-110 No. 2 non-viscous oils, 15 to 30 pour point, are quoted 0.25c lower, beginning March 15, 1937. To obtain delivered prices in Chicago, add 0.25c per gal.

Note: Chicago neutral oil prices are being changed from 15 to 30 pour point to 0 to 10 pour point oils to afford an easier comparison with Mid-Continent prices.

Cylinder Stocks

MID-CONTINENT (F.o.b. Tulsa basis. Prices represent majority of quotations or sales).

Bright Stocks:			
190-200 Vis. at 210° D	23.00	23.00	23.00
150-160 Vis. at 210° D:			
0 to 10 pour point	20.00	20.00	20.00
10 to 25 pour point	19.50	19.50	19.50
25 to 40 pour point	19.00	19.00	19.00
150-160 Vis. at 210° E	19.00	19.00	19.00
120 Vis. at 210° D:			
0 to 10 pour point	19.00	19.00	19.00
10 to 25 pour point	18.50	18.50	18.50
25 to 40 pour point	18.00	18.00	18.00
60 Stm. Rfd. Dark Green	5.50 - 7.50	5.50 - 7.50	5.50 - 7.50
600 Stm. Rfd. Olive Green	7.00 - 9.50	7.00 - 9.50	7.00 - 9.50
631 Steam Refined	*17.50	*17.50	*17.50
Black Oil	3.50 - 4.00	3.50	3.50

*Only one refiner quoting.

CHICAGO (F.o.b. Chicago district refineries) (Viscosity at 210°)

Unfiltered Steam Refined:			
140	9.00	9.00	9.00
160	10.00	10.00	10.00
200	11.00	11.00	11.00
Bright stocks, 160 vis. at 210. No. 8 color:			
0 to 10 pour point	21.75	21.75	21.75
15 to 25 pour point	21.25	21.25	21.25
30 to 40 pour point	20.75	20.75	20.75
E filtered Cyl. Stock	15.50	15.50	15.50

To obtain prices delivered in Chicago, add 0.25c per gal.

WESTERN PENNA. (A.S.T.M. tests; prices represent majority of quotations or sales, to car unloaders).

600 stm. rfd. filterable	17.00 -18.00	*17.50 -18.00	*17.50 -18.00
650 steam refined	19.00 -19.50	*19.00 -19.50	*19.00 -19.50

*Nominal.

(*Continued on page* 31)

appreciates the Southern hospitality of KENTUCKY

Likewise, Kentucky motorists evidence their appreciation of Linco Gasoline and other Linco products by long continued patronage.

LINCO GASOLINE is a quality motor fuel, refined from the cream of Kentucky Crude, which accounts for its outstanding characteristics of power and efficiency --- it is an extra mileage gasoline too.

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Linco-Penn Motor Oils, Linco Tires and Tubes Linco Batteries and Accessories are among other items included in the Linco Line.

KENTUCKY JOBBERS

The Ohio Oil Company, one of the world's largest producers of crude oil, is seeking reliable and aggressive jobbers to distribute uniform and guaranteed high-quality Linco Products. These products have been favorably known to motorists everywhere for many years.

Write, phone or wire AT ONCE for details regarding an Exclusive Territory Franchise. This proposition merits your serious consideration.

THE OHIO OIL COMPANY

GENERAL OFFICES - - - - FINDLAY, OHIO

ROBINSON, ILLINOIS TULSA, OKLAHOMA FT. WORTH, TEXAS

the Basin and in the San Joaquin Valley, while gas and diesel oils were somewhat firmer. Wholesale and retail prices of gasoline were generally unchanged throughout the west coast territory.

Small quantities of kerosine-distillate could be bought at independent plants in the Basin for 2.5 cents a gallon, a decline of about 0.25 cent from the price prevailing last week. The general price, however, at these plants was believed to be about 2.75 cents. Prices for this product continued firm in the San Joaquin Valley, where the current demand exceeded supply.

Low-grade, high-sulphur fuel oil from the Venice field was available at $0.60 per barrel, a decline of approximately 0.5 cent from previous quotations. Other grades of fuel oil also were fractionally lower at independent plants, but no changes in quotations were made on major company products, which remained at $0.85 per barrel in both the Valley and Basin.

Stability of the Los Angeles Basin gasoline price structure was helped by a decline in the quantity of competitive gasoline brought into that area from the San Joaquin Valley. However, one independent refiner with a plant in the Basin continued to quote bulk prices on his various products that were from 1 to 1.5 cents below those maintained by major companies for their third-grade brands and by other independents for their competitive brands. This one refiner quoted 12 cents per gallon, inclusive of 4 cents tax, on his unbranded product at the rack, and 12.5 cents for tank wagon deliveries of his branded gasoline.

Tank wagon deliveries of major company third grade and a majority of independent competitive brands of gasoline were made in Los Angeles and Orange counties for 13.5 cents.

Offsetting, to some extent, the decline in competitive gasoline brought into the Basin from outside refineries was an increase in the quantity of competitive motor fuel shipped from the San Joaquin Valley into Oregon and Washington. So far, however, the invasion had not seriously affected either wholesale or retail prices in those states.

Eastern

Gasoline Steady

N. P. N. News Bureau

NEW YORK, April 26

● Gasoline markets were steady along the eastern seaboard last week. Service station prices were higher in northern New Jersey, where a price war had prevailed for several months.

Early the past week a number of service station operators in northern New Jersey advanced their selling prices on "branded" gasoline from 12.9 cents a gallon, including 4 cents taxes, to 15.9 cents. Other dealers gradually followed the advances and by the end of the week reports were that Essex and Union counties were generally at 15.9 cents for regular "branded" gasoline. "Unbranded" gasoline generally was reported selling at 14.5 cents, including tax, compared to prices of 11.9 cents and 12.5 cents early in the week.

Many dealers in Hudson and Bergen

(*Continued on page* 36)

Fuel Oil PRICES STEADY; 100 CARS EAST TEXAS OIL SOLD

FUEL oil markets generally were steady in the week ended April 24. Domestic tank car trading was relatively light, both of the heavy grades and the light grades. Prices at the same time were well held in the refinery markets and also in the seaboard terminal markets along the Atlantic Coast.

Light fuel markets were featured by a 100-car purchase of No. 2 oil in East Texas for shipment to the Gulf Coast. Export demand for the light fuels has been exceptionally heavy, supplies at the Gulf Coast have been limited, and exporters were having to go to the inland markets to cover a portion of their commitments.

Heavy fuels were firm. Open market demand was light in most markets but shipments against contracts were preventing any substantial storage accumulations.

* * *

TULSA, April 26.—A 100-car purchase of No. 2 fuel oil in East Texas for shipment to the Gulf Coast last week was the highlight in the Mid-Continent fuel oil market. The oil was bought for May-June delivery. Price paid could not be confirmed. Buyers indicated further purchases probably would be made in the near future.

Light fuel oils were firmly entrenched at unchanged prices last week. There were few indications of price shading. Sellers said they were not anxious to dispose of the light fuels unless they could obtain current general market prices.

Heavy grades of fuel oil were moving mostly to railroads. Some business from industrial concerns was received, although volume was off slightly.

* * *

NEW YORK, April 26.—Heavy fuel oils continued firm along the eastern seaboard last week. Quotations and sales prices for Grade C bunker oil for shore plant delivery covered a wide range—$1.20 to $1.50 a barrel for tank car movement. Actual spot sales at either of these two extremes were reported decidedly light, however.

Many companies quoting the $1.20 price said they were not interested in open market business and that it represented a contract figure. Some companies said they were quoting Gulf cargo prices, plus freight to New York, making a total of approximately $1.45 a barrel, f.o.b. the harbor. Some spot market movement was reported at $1.25 to $1.30 a barrel. Reports were current that leading bunker oil distributors would raise their posted prices from $1.20 to $1.30 a barrel, but confirmation was lacking as the week ended.

Light fuel oil markets were steady throughout the week. No general changes were reported in tank car or barge prices at deepwater terminals. Suppliers for the most part said their storage was fairly low and they were content to hold to the sidelines.

* * *

CHICAGO, April 26.—Light fuel oils continued to be the surprise of the market to Mid-Western buyers and sellers in the week ended April 24. While many have

(*Continued on page* 34)

FUEL OILS

Prices in Effect April 26, 1937

Following are tank wagon prices of various grades of heating oil at the points shown in various territories. Prices are in cents per gallon.

	No. 1	No. 2	No. 3	No. 4
S. O. NEW JERSEY				
Newark, N. J.	*	6.50	6.50	6.50
Atlantic City, N. J.	*	6.5	6.5	6
Baltimore, Md.	*	6.75	6.75	6.25
Washington, D. C.	*	7.00	7.00	7.00

Discounts: At Newark and Atlantic City, purchasers taking 50,000 gals. get discount of 0.5c per gal.

SOCONY-VACUUM OIL CO., INC.				
(S. O. New York Division)				
New York City	*	7.00	7.00	6.5
Albany, N. Y.	*	7.00	7.00	6.5
Rochester, N. Y.	*	7.00	7.00	7.00
Boston, Mass.	*	6.75	6.75	6.75
Bangor, Me.	*	5.75	5.75	5.75
Manchester, N. H.	*	6.75	6.75	6.75
Burlington, Vt.	*	7.50	7.50	....
New Haven, Conn.	*	6.25	6.25	6.25
Providence, R. I.	*	6.75	6.75	6.25

Discounts: At New York City, consumers taking 10,000 to 50,000 gals., get 0.25c per gal. discount when minimum amount has been reached; above 50,000 gals. 0.5c. Contract buyers are paying 0.25c less than above prices at New York City, Albany, New Haven and Providence due to top-price contracts.

*Prices for No. 1 fuel in S. O. New Jersey and Socony-Vacuum territories same as for kerosine, which see in tank wagon table for various cities; prices change with kerosine.

	No. 1	No. 2	No. 3	No. 4
ATLANTIC REFINING				
Philadelphia, Pa.	7.25	6.50	6.50	6.00
Allentown, Pa.	7.75	7.00	7.00	7.00
Wilmington, Del.	8.00	6.50	6.50	6.00
Springfield, Mass.	7.50	6.25	....	6.25
Worcester, Mass.	8.00	6.75	....	6.75
Hartford, Conn.	7.5	6.50	....	6.50
S. O. OHIO				
*Ohio Statewide	8.00	7.50	7.00	6.75

Note: S. O. Ohio prices are for hose dumps, bucket dumps are 0.5c per gallon higher.

Except Cleveland Division and City of Toledo. In Cleveland Division (Cuyahoga, Lake and Geauga counties), No. 1 price is same as statewide; Nos. 2, 3 and 4 are 0.5c higher; No. 5 is priced 0.25c lower than No. 4. In Toledo No. 2 is 0.5c lower than statewide, others same.

S. O. INDIANA

Stanolex Fuel and Furnace Oils

	No. 1 Fuel	Stanolex Furnace
Chicago	7.00	7.00
Indianapolis	....	*11.7
Detroit	7.1	7.1
Milwaukee	8	7.3
Minneapolis	7.5	7.5
Sioux City	7.1	7.1
St. Louis	7.5	6.8
Kansas City	6.5	6.5

*Includes state tax of 4c.

Note: Small-lot deliveries of light fuel oils range up to 2c higher than above quotations.

REFINERY TANK CAR MARKETS

Prices in cents per gallon, tank car lots, except where otherwise noted. Inter-refinery and export prices not included. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude.

Cylinder Stocks (cont'd)

Western Pennsylvania (cont'd)

	April 26	April 19	April 12
600 flash	20.00 –20.50	*20.00 –20.50	*20.00 –20.50
630 flash	*24.50 –25.00	*24.00 –25.00	*24.00 –25.00
600 Warren E	19.50 –20.00	*19.50 –20.00	*19.50 –20.00

*Nominal

Bright stock, 145-155 vis. at 210°, 540-550 flash, No. 8 color:

10 pour test	28.00 –28.50	28.00 –28.50	28.00 –28.50
15 pour test	27.00 –27.50	27.00 –27.50	27.00 –27.50
20 pour test	26.00 –26.50	26.00 –26.50	26.00 –26.50
25 pour test	25.00 –25.50	25.00 –25.50	25.00 –25.50

Petrolatums

WESTERN PENNA. (Per pound, in barrels, carload lots, f.o.b. Penna. refineries. In tank cars, 0.5c per pound less. Quotations by majority of refiners making petrolatums).

Snow white	6.625– 6.75	6.625– 6.75	6.625– 6.75
Lily White	5.625– 5.75	5.625– 5.75	5.625– 5.75
Cream White	4.625– 4.75	4.625– 4.75	4.625– 4.75
Light Amber	2.75 – 2.875	2.75 – 2.875	2.75 – 2.875
Amber	2.50 – 2.625	2.50 – 2.625	2.50 – 2.625
Red	2.125– 2.375	2.125– 2.375	2.125– 2.375

Wax

	April 26	April 19	April 12

WESTERN PENNA. (Prices represent majority of quotations or sales, per pound, f.o.b. New York)

122-124 wh. crude scale, A.m.p.	2.70 – 2.75	2.65 – 2.70	2.65 – 2.70
124-126 wh. crude scale, A.m.p.	2.75 – 2.80	2.70 – 2.75	2.70 – 2.75

OKLAHOMA (Prices represent majority of quotations or sales, per pound in barrels; in a few instances, per pound in burlap bags; f.o.b. Oklahoma refineries)

124-126 wh. crude scale, A.m.p.	2.75 – 3.00	2.75 – 2.875	2.75 – 2.875

CHICAGO (Quotations of majority of sellers f.o.b. Chicago district refineries, in bags, carload lots. Melting points are E.M.P. (A.S.T.M.) methods; add 3° F. to convert into A.m.p.)

Fully refined:			
122-124	4.65 – 4.75	4.65 – 4.75	4.65 – 4.75
125-127	4.90 – 5.00	4.90 – 5.00	4.90 – 5.00
127-129	5.05 – 5.15	5.05 – 5.15	5.05 – 5.15
130-132	*5.45 – 5.55	*5.45 – 5.55	*5.45 – 5.55
132-134	*5.70 – 5.80	*5.70 – 5.80	*5.70 – 5.80
135-137	*6.45 – 6.55	*6.45 – 6.55	*6.45 – 6.55

*Same prices quoted in bags or slabs loose.

MID-WESTERN TANK CAR MARKETS

Prices in cents per gallon, except where otherwise noted, in tank car lots, representing majority of quotations or sales made by Chicago sellers, from legally produced crude to jobbers on Group 3 (Oklahoma) freight basis, although shipments may originate in other South-western or Mid-western refining districts. Prices do not include state or federal taxes.

Gasoline

U. S. Motor gasoline:	April 26	April 19	April 12
62 octane and below	5.125– 5.25	5.00 – 5.125	5.00 – 5.125
63-67 octane	5.375– 5.50	5.25 – 5.375	5.25 – 5.375
68-70 octane (regular)	5.875– 6.125	5.75 – 6.00	5.75 – 6.00
60-62, 400 e.p.	5.125– 5.25	5.00 – 5.125	5.00 – 5.125
64-66, 375 e.p.	†5.25	†5.00	†5.00
68-70, 350-360 e.p.	†5.375	5.00 – 5.625	5.00 – 5.625

†Only one seller quoting.

Kerosine

41-43 w.w.	4.125– 4.25	4.125– 4.25	4.125
42-44 w.w.	4.25 – 4.375	4.25 – 4.375	4.125– 4.25

Fuel and Gas Oils

Domestic:			
No. 1 prime white	3.875– 4.00	3.875– 4.00	3.875– 4.00
No. 1 straw	3.625– 3.875	3.625– 3.875	3.75 – 3.875

	April 26	April 19	April 12
No. 2 straw	3.375– 3.50	3.375– 3.50	3.375– 3.75
No. 2 dark	3.25 – 3.375	3.25 – 3.375	3.375– 3.625
No. 3	3.125– 3.375	3.125– 3.375	3.25 – 3.375
No. 4 (per bbl.)	$1.05 –$1.15	$1.05 –$1.15	$1.05 –$1.15
No. 5 (per bbl.)	$0.85 –$0.90	$0.85 –$0.90	$0.85 –$0.90
Industrial:			
No. 4 (per bbl.)	$1.075–$1.12	$1.075–$1.12	$1.075 –$1.12
No. 5 (per bbl.)	$0.80 –$0.90	$0.80 –$0.90	$0.80 –$0.90
No. 6 (per bbl.)	$0.75 –$0.80	$0.75 –$0.80	$0.75 –$0.80
U.G.I. gas oil	2.875– 3.125	2.875– 3.125	2.875– 3.125

*Nominal.

Naphtha and Solvent

(Tank car prices quoted f.o.b. Group 3 by majority of Chicago sellers)

Stoddard solvent	6.875	6.875	6.875
Cleaners' naphtha	7.375	7.375	7.375
V. M. & P. naphtha	7.375	7.375	7.375
Mineral spirits	6.375	6.375	6.375
Rubber solvent	7.375	7.375	7.375
Lacquer diluent	8.375	8.375	8.375

DAILY GASOLINE PRICES

Daily range of gasoline prices (cents per gallon) in tank cars, as reported in PLATT'S OILGRAM, (Week Ended April 23, 1937)

	Apr. 19	Apr. 20	Apr. 21	Apr. 22	Apr. 23
U. S. Motor, 62 octane and below:					
*North Texas	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25
West Texas	5.00 – 5.125	5.00 – 5.125	5.00 – 5.125	5.00 – 5.125	5.00 – 5.125
Oklahoma	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25
Mid-Western (Group 3 basis)	5.00 – 5.125	5.00 – 5.125	5.00 – 5.125	5.00 – 5.125	5.00 – 5.125
U. S. Motor, 63-67 octane:					
*North Texas	5.375– 5.50	5.375– 5.50	5.375– 5.50	5.375– 5.50	5.375– 5.50
West Texas	5.375– 5.50	5.375– 5.50	5.375– 5.50	5.375– 5.50	5.375– 5.50
Oklahoma	5.375– 5.50	5.375– 5.50	5.375– 5.50	5.375– 5.50	5.375– 5.50
Mid-Western (Group 3 basis)	5.25 – 5.375	5.25 – 5.375	5.25 – 5.375	5.25 – 5.375	5.25 – 5.375
U. S. Motor, 68-70 octane (regular)					
*North Texas	5.875– 6.25	5.875– 6.25	5.875– 6.25	5.875– 6.25	5.875– 6.25
West Texas	6.00 – 6.125	6.00 – 6.125	6.00 – 6.125	6.00 – 6.125	6.00 – 6.125
Oklahoma	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25
Mid-Western (Group 3 basis)	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00
Motor Gasoline, 60-64 octane					
New York harbor	†6.75 – 7.00	†6.75 – 7.00	†6.75 – 7.00	‡7.00	‡7.00
Philadelphia district	†6.75 – 7.00	†6.75 – 7.00	†6.75 – 7.00	†6.75 – 7.00	†6.75 – 7.00
Baltimore district	†6.75 – 7.00	†6.75 – 7.00	†6.75 – 7.00	†6.75 – 7.00	†6.75 – 7.00
Motor Gasoline, 65 octane & above					
New York harbor	‡7.00 – 7.25	‡7.00 – 7.25	‡7.00 – 7.25	‡7.25	‡7.25
Philadelphia district	†7.00 – 7.25	†7.00 – 7.25	†7.00 – 7.25	†7.00 – 7.25	†7.00 – 7.25
Baltimore district	†7.00 – 7.25	†7.00 – 7.25	†7.00 – 7.25	†7.00 – 7.25	†7.00 – 7.25
U. S. Motor Gasoline, 58-62°					
Bradford-Warren (Western Penna.)	5.00 – 5.125	5.25 – 5.375	5.25 – 5.375	5.25 – 5.375	5.375– 5.50
Other districts (Western Penna.)	5.00 – 5.125	5.25 – 5.375	5.25 – 5.375	5.25 – 5.375	5.375– 5.50
Motor Gasoline, Minimum 60 octane					
Bradford-Warren (Western Penna.)	†6.875– 7.00	†6.875– 7.00	†6.875– 7.00	†6.875– 7.00	†6.875– 7.00
Other districts (Western Penna.)	6.625– 6.875	6.625– 6.875	6.625– 6.875	6.625– 6.875	6.875– 7.00
Motor Gasoline, Minimum 65 octane					
Bradford-Warren (Western Penna.)	†7.125– 7.25	†7.125– 7.25	†7.125– 7.25	†7.125– 7.25	†7.125– 7.25
Other districts (Western Penna.)	6.75 – 7.00	6.75 – 7.00	6.75 – 7.00	6.75 – 7.00	7.00 – 7.125

*For shipment to Texas and New Mexico destinations; Group 3 prices are quoted on northern shipments.
†Nominal.
‡Nominal. April 22 and 23, some suppliers quote 0.25c less for New Jersey shipment.

TANK WAGON, SERVICE STATION MARKETS

Tax column includes 1c federal tax, state gasoline tax, also city and county taxes as indicated in footnotes, and inspection fees, as shown in general footnote. These prices in effect April 26, 1937, as posted by principal marketing companies at their headquarters offices, but subject to later corrections

S. O. New Jersey

ESSOLENE

	Consumer Tank Car	Dealer T.W.	Taxes	Posted S.S.	Kerosine T.W.
Atlantic City, N. J.	7.5	9	4	*	8
Newark, N. J.	7	8.5	4	*	8
Annapolis, Md.	8.6	10.1	5	*	10
Baltimore, Md.	8	9.5	5	*	8.5
Cumberland, Md.	9.4	11.9	5	*	10
Washington, D. C.	8	9.5	3	16	9
Danville, Va.	9.2	11.7	6	*	12.9
Norfolk, Va.	8	10.5	6	*	11.5
Petersburg, Va.	8.3	10.8	6	*	11.7
Richmond, Va.	8.3	10.8	6	*	11.7
Roanoke, Va.	9.5	12	6	*	12.9
Charleston, W. Va.	8.8	11.3	6	*	12.6
Parkersburg, W. Va.	8.1	10.6	6	*	11.2
Wheeling, W. Va.	9	10.5	6	*	12.2
Charlotte, N. C.	9.4	11.9	7	*	12.6
Hickory, N. C.	9.9	12.4	7	*	13
Mt. Airy, N. C.	9.7	12.2	7	*	12.8
Raleigh, N. C.	9	11.5	7	*	12.1
Salisbury, N. C.	9.5	12	7	*	12.7
Charleston, S. C.	8	10.5	7	*	11.1
Columbia, S. C.	9	11.5	7	*	12.1
Spartanburg, S. C.	9.7	12.2	7	*	12.9

*S. O. New Jersey transferred stations to dealers; no prices available.

Price basis to undivided dealers: Dealer t.w. price less 0.5c per gal.

Price basis to commercial consumers: To contract accounts, purchasing at least one full compartment at a time by hose connection: Effective March 12, 1937, in New Jersey, and March 8 in Maryland, District of Columbia, and in Arlington and Fairfax Counties in Virginia, on yearly purchases: from 2,500 to 100,000 gals., consumer t.w. price at time and place of delivery; 100,000 gals. per year, consumer tank car price, plus 0.5c per gal. Generally consumer t.w. price in foregoing states is equivalent of dealer t.w. price, less 0.5c per gal.

Effective Jan. 25, 1937, in North and South Carolina, and effective Feb. 27, 1937 in Virginia except Arlington and Fairfax Counties, deliveries of 50 gals. or more at one time by t.w. will be billed at a price equal to 2c per gal. over the posted consumer t.c. price in effect at time and place of delivery. Deliveries of less than 50 gals. at one time will be billed at a price equal to 6c per gal. over the posted consumer t.c. price.

Effective March 22, 1937, in West Virginia, same price policy as shown in above paragraph, except minimum delivery is 100 gals., instead of 50 gals., in t.w. or steel bbls.

Kerosine Discount: 1c off t.w. price for 25 gals. or more, under contract thru territory (Baltimore City contract not necessary) except no discount in state of New Jersey.

Socony-Vacuum Oil Co., Inc.

(S. O. New York Division)

SOCONY MOBILGAS

	Consumer Tank Car	"Split" Dealer T.W.	Taxes	Total "Split" Dealer T.W.	Kerosine T.W.
Metropolitan N. Y. City: Boroughs of Manhattan, Bronx and Brooklyn (Kings and Queens)	8	9.5	*4	13.5	7.75
Borough of Richmond (Staten Is.)	8	9.75	*4	13.75	7.75
Albany, N. Y.	8.5	10	4	14	8.25
Binghamton, N. Y.	9.25	10.8	4	14.8	8.75
Buffalo, N. Y.	8.67	10.3	4	14.3	8
Jamestown, N. Y.	8.28	10.8	4	14.8	8.25
Plattsburg, N. Y.	8.9	10.9	4	14.9	9
Rochester, N. Y.	8.74	10.3	4	14.3	8.25
Syracuse, N. Y.	8.7	10.3	4	14.3	9
Danbury, Conn.	8.8	10.3	4	14.3	8.25
Hartford, Conn.	9.1	10.6	4	14.6	7
New Haven, Conn.	8.5	10	4	14	7
Bangor, Me.	9.1	11.3	5	16.3	7.5
Portland, Me.	8.5	10.8	5	15.8	8.5
Boston, Mass.	8.5	10	4	14	7.5
Concord, N. H.	9.2	11.8	5	16.8	9.25
Lancaster, N. H.	10.1	12.8	5	17.8	10.25
Manchester, N. H.	9	11.3	5	16.3	8.75
Providence, R. I.	8.5	10	3	13	7.75
Burlington, Vt.	8.9	10.9	5	15.9	8.75
Rutland, Vt.	9.2	11.2	5	16.2	8

*Plus 2% city sales tax computed at time of each sale.

Note: Socony-Vacuum has transferred all service stations to dealers; no prices available.

Price basis to undivided dealers: 0.5c less than "split" dealer t.w.

Price basis to commercial consumers: Effective about Nov. 15, 1936 in New York and New England, for tank wagon delivery: monthly purchases of 25,000 gals. or over, pay consumer tank car price at point of delivery, plus 0.5c gal; monthly purchases of 5,000 to 25,000 gals., pay undivided dealer tank wagon price at point of delivery; monthly purchases of less than 5,000 gals., pay divided dealer tank wagon price at point of delivery. Private consumers pay undivided dealer tank wagon price at point of delivery, plus 2c gal.

Atlantic Refining

ATLANTIC WHITE FLASH GASOLINE

	Commercial Tank Car	All Tax	Total Dealer T.W.	S.S.	Kerosine T.W.
Philadelphia, Pa.	7.5	5	14	17.5	10.5
Pittsburgh	8.5	5	15.5	20	11
Allentown	8.25	5	14.5	**	11
Erie	8	5	14.5	**	10
Scranton	8.25	5	14.5	**	11
Altoona	8.5	5	15.5	**	11
Harrisburg	8.25	5	14.5	**	11
Williamsport	8.5	5	15.5	**	11
Dover, Del.	...	5	14.5	**	11
Wilmington	...	5	13.5	**	11
Boston, Mass.	...	4	14	**	7.75
Springfield, Mass.	...	4	14.8	**	7.75
Worcester, Mass.	...	4	14.8	**	8
Fall River, Mass.	...	4	14	**	7.75
Hartford, Conn.	...	4	14.6	**	7
New Haven, Conn.	...	4	14	**	7
Providence, R. I.	...	3	13	**	7.75
Atlantic City, N. J.	...	4	13	**	8
Camden, N. J.	...	4	13	**	8
Trenton, N. J.	...	4	13	**	8
Annapolis, Md.	...	5	15.1	**	9.5
Baltimore, Md.	...	5	14.5	**	8.5
Hagerstown, Md.	...	5	15.5	**	10
Richmond, Va.	...	6	16.8	**	11.7
Wilmington, N. C.	...	7	17.6	**	11.3
Brunswick, Ga.	...	7	17.5	**	13
Jacksonville, Fla.	...	8	17.5	**	11

*Georgia has kerosine tax of 1c per gal., not included in above price.

**Atlantic Refining transferred stations to dealers; no prices available.

Price basis to undivided dealers: Dealer t.w. less 0.5c per gal.

Price basis to commercial consumers: in Penna. and Delaware, effective Mar. 11, 1937, on yearly gasoline purchases to contract accounts taking full compartment hose deliveries, using 100,000 gals. or more per year, tank car price plus 0.5c per gal.; consumers taking less than 100,000 gals., undivided dealer price. Consumers under contract and not under contract, taking less than full compartment delivery, and consumers not under contract taking full compartment delivery, get divided dealer price. Consumers taking less than 25 gals., t.w. delivery, get 4c above undivided dealer price.

Discount on kerosine: Effective Oct. 29, 1936, in Pennsylvania and Delaware, 2c per gal. off t.w. price on t.w. deliveries of 25 gals. or more at one time.

S. O. Ohio

SOHIO X-70 GASOLINE

	All Tax	**Consumer T.W.	Commercial T.W.	†Divided Dlr.	Kerosine T.W.
Ohio State-Wide	5	17	15.5	16	*13.5
Counties where prices are below statewide:					
Columbiana	5	16.5	15	15.5	....
Defiance, Franklin, Knox and Pickaway	5	16	14.5	15	....
Paulding	5	15.5	14	14.5	....

RENOWN GASOLINE (Third Grade)

Ohio State-Wide	5	16.5	15	15.5	....
Counties where prices are below statewide:					
Columbiana	5	16	14.5	15	....
Defiance, Franklin, Knox, and Pickaway	5	15.5	14	14.5	....
Paulding	5	15	13.5	14	....
Counties where prices are above statewide: Butler, Clermont, Darke, Greene, Hamilton, Hocking, Miami, Montgomery, Preble, Summit, and Warren	5	17	15.5	16	....

KEROSINE PRICES

(Off Statewide Level)

Kerosine prices are off statewide level in the following counties:

Gallia and Washington *13

Allen, Ashtabula, Auglaize, Champaign, Columbiana, Darke, Geauga, Hancock, Hardin, Logan, Mahoning, Mercer, Portage, Preble, Putnam, Shelby, Summit, Trumbull, Union, Van Wert and Wyandot: *12.5

Paulding *12

Fayette, Greene, Licking, Madison and Pickaway ..... * 9.5

*Kerosine prices include 1c state tax.

**Tank wagon price to commercial consumers, in t.w. deliveries of 25 gals. or more; less than 25-gal. deliveries get s.s. price. Price to undivided dealers is same as to commercial consumers.

†This price also to authorized agents, exclusive of 0.5c rental.

Sales tax: Ohio's 3% sales tax, effective Jan. 27, 1935, is added "where assessable, to regular posted prices", S. O. Ohio says.

On kerosine, prices to resellers and commercial consumers are posted generally at 3c per gal. below consumer t.w. price in any quantity, when such prices are on state-wide level.

S. O. Kentucky

CROWN GASOLINE

(Regular Grade)

	Consumer T.W.	All Tax	Total Consumer T.W.	Net Dlr.	Kerosine T.W.
Covington, Ky.	13	6	19	16	11
Lexington, Ky.	13.5	6	19.5	16.5	11
Louisville, Ky.	13 5	6	19.5	16.5	10.5
Paducah, Ky.	13.5	6	19.5	16.5	10
Jackson, Miss.	14	7	21	18	13
Vicksburg, Miss.	13.5	7	20.5	17.5	13
Birmingham, Ala.	13	*8	21	18	12
Mobile, Ala.	13	*9	22	19	11
Montgomery, Ala.	13	*9	22	19	14.5
Atlanta, Ga.	14	7	21	18	13
Augusta, Ga.	11.5	7	18.5	15.5	14
Macon, Ga.	14.5	7	21.5	18.5	14.5
Savannah, Ga.	13	7	20	17	13
Jacksonville, Fla.	12.5	8	20.5	17.5	11
Miami, Fla.	12.5	8	20.5	17.5	†10.5
Pensacola, Fla.	13	*9	22	19	12
Tampa, Fla.	12.5	*9	21.5	18.5	11

KYSO GASOLINE

(Third Grade)

Covington, Ky.	11.5	6	17.5	15	....
Lexington, Ky.	12	6	18	15.5	....
Louisville, Ky.	11.5	6	17.5	15	....
Paducah, Ky.	11	6	17	14.5	....
Jackson, Miss.	12.5	7	19.5	17	....
Vicksburg, Miss.	11.5	7	18.5	16	....
Birmingham, Ala.	11	*8	19	16.5	....
Mobile, Ala.	10.5	*9	19.5	17	....
Montgomery, Ala.	10.5	*9	19.5	17	....
Atlanta, Ga.	11	7	18	15.5	....
Augusta, Ga.	8.5	7	15.5	13	....
Macon, Ga.	10.5	7	17.5	15	....
Pensacola, Fla.	11	*9	20	17.5	....

Discounts to tank wagon consumers: Effective Jan. 4, 1937, thru territory, on Crown gasoline, 3c per gal. below consumer t.w. price; on Kyso, 2.5c below.

Discounts on kerosine: Prices in Kentucky are net, but in other states subject to 2c discount.

**Taxes*: in the tax column is included these city and county gasoline taxes at the following points: Mobile, 2c city; Birmingham, 1c city; Montgomery, 1c city and 1c county; Pensacola and Tampa, both 1c city. Georgia and Mississippi kerosine prices include 1c state tax. Montgomery kerosine prices includes 1c city tax.

†Effective Mar. 25, 1937, Miami kerosine price subject to 2c discount.

S. O. Indiana

	Red Crown Total Tax	Dealer Prices Red Crown T.W	Stanolind T.W.	Kerosine T.W.
Chicago, Ill.	4	16	14	10.1
Decatur, Ill.	4	16	14.5	14.5	10.1
Joliet, Ill.	4	16	14.5	14.5	10.1
Peoria, Ill.	4	16	14.5	14.5	10.1
Quincy, Ill.	4	15.8	14.3	14.3	9.9
Indianapolis, Ind.	5	17.7	16.2	16.2	†13.6
Evansville, Ind.	5	17.5	16	16	†14.6
South Bend, Ind.	5	17.9	16.4	16.4	‡13.6
Detroit, Mich.	4	15.1	13.6	13.6	9.8
Grand Rapids, Mich.	4	16.5	15	15	10.9
Saginaw, Mich.	4	16.3	14.8	14.8	10.7

Above prices include these inspection fees on both gasoline and kerosine, per gallon, figured on basis of 50 gallons per barrel:

Alabama, 1/40c on gasoline, 1/2c on kerosine; Arkansas, 1/5c per gal. in a single barrel, 1/20c per gal. in bulk; Florida, 1/8c; Illinois, 3/100c; Indiana, 1/2c per gal. in a single barrel; 3/10c per gal. in lots of 2 to 10 bbls., 1/5c for 10 to 50 bbls., 2/25c for over 50 bbls.; Kansas, 1/50c, (3/50c can be charged to meet inspection department expenses); Louisiana, 1/32c; Minnesota, 1/25c; Missouri, 3/100c; Nebraska, 3/100c; Nevada, gasoline, 1/20c; North Carolina, 1/4c; North Dakota, 1/20c; Oklahoma, 2/25c per gal., in lots of more than 50 bbls., 1/5c in lots less than 50 bbls.; South Carolina, 1/8c; South Dakota, 1/10c; Tennessee, 2/5c; and Wisconsin, 1/25c.

Kerosine inspection fee only: Iowa, 2/25c; Michigan, 4/5c per gal. for first 2 bbls.; 3/5c for next 3; 2/5c for next 5; 3/10c for next 15, and 1/5c per gal. in lots over 25 bbls.

TANK WAGON, SERVICE STATION MARKETS

Tax column includes 1c federal tax, state gasoline tax, also city and county taxes as indicated in footnotes, and inspection fees, as shown in general footnote. These prices in effect April 26, 1937, as posted by principal marketing companies at their headquarters offices, but subject to later corrections

S. O. Indiana—Cont'd

	Red Crown Total Tax	Dealer Prices Red Crown T.W.	Stano-lind T.W.	Kero-sine T.W.
Green Bay, Wisc.	5	17.7	16.2	16.2	10.8
Milwaukee, Wis.	5	17.3	15.8	14.2	10.4
La Crosse, Wis.	5	17.4	15.9	15.9	10.5
Minneapolis-St. Paul	4	16.4	14.9	14.9	10.5
Duluth, Minn.	4	16.8	15.3	15.3	10.9
Mankato, Minn.	4	16.4	14.9	14.9	10.5
Des Moines, Ia.	4	15.8	14.3	14.3	9.9
Sioux City, Ia.	4	16	14.5	14.5	10.1
Davenport, Ia.	4	16	14.5	14.5	10.1
Mason City, Ia.	4	16.2	14.7	14.7	10.3
St. Louis, Mo.	†4	15.7	14.2	14.2	9.8
Kansas City, Mo.	†4	15.4	13.9	13.9	8.9
St. Joseph, Mo.	†4	15.4	11.4	11.4	6.9
Fargo, N. D.	4	17.4	15.9	15.9	11.5
Minot, N. D.	4	18.6	17.1	17.1	12.7
Huron, S. D.	*5	17.8	16.3	16.3	10.9
Wichita, Kans.	4	14.9	13.4	12.3	8.9

†St. Louis, Kansas City and St. Joseph prices include 1c city tax. ‡Includes 4c state tax.

*South Dakota gasoline and kerosine prices include 0.1c for sales tax.

Discount to commercial consumers: Effective Jan. 1, 1935, thru territory, except Michigan effective Feb. 1, on purchases per month, discount off t.w. prices; all gasolines, 25 to 1,000 gals., at t.w. price; 1,000 gals., or more, 1.5c off t.w. on Ethyl and Red Crown, and 0.5c on Stanolind. Minimum delivery is 25 gals.

Subnormal Stanolind Points

Normally Stanolind tank wagon prices are 1c under normal Red Crown t.w. prices. Among subnormal points on Stanolind t.w. are these: Des Moines, 14.1c; Mason City, 13.9c; Huron, 16c; and Wichita, 11.5c, all including state and federal taxes.

S. O. Nebraska

STANDARD RED CROWN GASOLINE

	All Tax	T.W. Total	Dealer Total	Kero-sine T.W.
Omaha, Neb.	6	18.4	16.9	10.4
McCook	6	18	17	10
Norfolk	6	18.8	17.3	10.8
North Platte	6	19.2	17.7	11.2
Scottsbluff	6	19.9	18.4	10.9

Discounts to commercial consumers: for tank wagon deliveries covered only by Standard Commercial Consumer Contract, effective January 1, 1935.

S. O. Louisiana

ESSOLENE

	Consumer Tank Car	Dealer T.W.	Taxes	Posted S.S.	Kero-sine T.W.
Little Rock, Ark.	8	10.5	7.5	**	11.5
Alexandria, La.	8	10.5	8	**	*12
Baton Rouge, La.	7.5	10	8	21.5	*12
New Orleans, La.	7.5	10	*10	23.5	*14
Lake Charles, La.	8.5	11	8	**	*12.5
Shreveport, La.	7	9.5	8	**	* 9.5
Lafayette, La.	8.5	11	8	**	*12.5
Bristol, Tenn.	10.5	11.75	8	**	14.5
Chattanooga, Tenn.	10	12.5	8	**	13.5
Knoxville, Tenn.	10.5	13	8	**	14
Memphis, Tenn.	8.5	11	8	**	12
Nashville, Tenn.	9.5	12	8	**	11

*New Orleans gasoline tax includes 7c state, 1c federal, and 2c parish tax. Louisiana kerosine prices include 1c state tax; in addition New Orleans has 1c parish tax.

**S. O. Louisiana transferred stations to dealers; no prices available.

Price basis to dealers: Undivided dealers get dealer price, less 0.5c.

Price basis to commercial consumers: Effective Dec. 21, 1936, thru territory; commercial consumers taking 50 gals. or more at one time by tank wagon, billed at price equivalent to 2c per gal. over posted consumer tank car price in effect at time and place of delivery; those taking less than 50 gals. at one time will be billed at a price equal to 6c per gal. over posted consumer t.c. price.

Humble Oil & Refining Co.

HUMBLE MOTOR FUEL

	*100% Dlr. T.W.	Taxes	Total *100% Dlr. T.W.	S.S.	Kero-sine T.W.
Dallas, Tex.	8.5	5	13.5	17	8
Ft. Worth, Tex.	9	5	14	18	8
Houston, Tex.	9.5	5	14.5	18.5	8
San Antonio, Tex.	9.5	5	14.5	18.5	8

U. S. MOTOR FUEL

(Third Grade)

Dallas, Tex.	7	5	12	14
Ft. Worth, Tex.	7.5	5	12.5	15
Houston, Tex.	8.5	5	13.5	16.5
San Antonio, Tex.	8.5	5	13.5	16.5

*Price is t.w. price to contract dealers and commercial consumers. Price to open dealers is 0.5c above t.w. prices shown above.

Price basis to dealers: to contract dealers consumer accounts off posted retail price: when posted retail price, including all taxes on Esso motor fuel is: 19.1c per gal. and above discount is 4c; 19c to 18.1c, 3.5c, and 18c and below, 3c. Humble motor fuel, 17.1c and above, 4c; 17 to 16.1c, 3.5c; and 16c and below, 3c; U. S. motor fuel, 15.1c and above, 3c; 15 to 14.1c, 2.5c; and 14c and below, 2c. To "open" dealer accounts, discounts in each case are 0.5c less on the same price basis.

Continental Oil

	Conoco Bronze Ex-Tax	All Tax	Dealer Prices Total Conoco Bronze	Demand	Kero-sine T.W.
Denver, Colo.	12.5	5	17.5	16.5	11.5
Grand Junc., Colo.	15	5	20	19	15
Pueblo, Colo.	10	5	15	14	10.5
Casper, Wyo.	13	5	18	17	11.5
Cheyenne, Wyo.	13	5	18	17	13
Billings, Mont.	15.5	6	21.5	20.5	15.5
Butte, Mont.	13.5	6	19.5	17.5	15.5
Great Falls, Mont.	15.5	6	21.5	20.5	15.5
Helena, Mont.	15.5	6	21.5	20.5	15.5
Salt Lake City, Utah	14.5	5	19.5	16.5	16
Boise, Ida.	15.5	6	21.5	20.5	18
Twin Falls, Ida.	15.5	6	21.5	20.5	18
Albuquerque, N. M.	11	†6.5	17.5	16.5	12
Roswell, N. M.	12	†6.5	18.5	15	10
Santa Fe, N. M.	13	*7	20	16.5	12
Muskogee, Okla.	10.5	5	15.5	14.5	7
Oklahoma City, Okla.	8	5	13	12	8
Tulsa, Okla.	9	5	14	13	6
Ft. Smith, Ark.	10	5	15	14	10
Little Rock, Ark.	10	7.5	17.5	15.5	9.5
Texarkana, Ark.	10	5	15	13	9

†Includes city tax of 0.5c.

*Includes 1c city tax.

S. O. California

STANDARD GASOLINE

	T.W.	Taxes	Total T.W.	S.S.	Kero-sine T.W.
San Francisco, Cal.	13.5	4	17.5	18.5	11.5
Los Angeles, Cal.	13	4	17	18	9
Fresno, Cal.	14.5	4	18.5	19.5	12
Phoenix, Ariz.	15	6	21	22	†16
Reno, Nev.	15	5	20	21	13
Portland, Ore.	14	6	20	21	13.5
Seattle, Wash.	14	6	20	21	13.5
Spokane, Wash.	17	6	23	24	16.5
Tacoma, Wash.	14	6	20	21	13.5

FLIGHT GASOLINE

(Third Grade)

San Francisco, Cal.	12	4	16	17	....
Los Angeles, Cal.	11.5	4	15.5	16.5	....
Fresno, Cal.	13	4	17	18	....
Reno, Nev.	13.5	5	18.5	19.5	....
Phoenix, Ariz.	13.5	6	19.5	20.5	....
Portland, Ore.	12.5	6	18.5	19.5	....
Seattle, Wash.	12.5	6	18.5	19.5	....
Spokane, Wash.	15.5	6	21.5	22.5	....
Tacoma, Wash.	12.5	6	18.5	19.5	....

†Includes 5c state tax.

Discount to dealers: on gasoline, off t.w. price on Standard Ethyl and Standard Gasoline, to 100% dealers, 3c; to split dealers, 2c; on Flight gasoline, both 100% and split dealers, 2c.

On Stanavo Aviation Gasoline, to all classes of dealers, 3c off t.w.

To commercial consumers: off tank wagon price: on single deliveries of 40 gallons and over, Stanavo Aviation, Standard Ethyl and Standard Gasolines, 3c. Flight Gasoline, 2c per gallon. Tank wagon delivery, less than 40 gals., 1c per gal. above posted t.w. price.

On kerosine in tank car, transport truck and trailer delivery, 3c off t.w. price; plant deliveries to jobbers, 2.5c below t.w.

Canada

PRICES OF IMPERIAL OIL LTD.

Per Imperial Gallon, which is 1.2 U. S. Gallons

3-STAR IMPERIAL GASOLINE

	T.W.	Taxes	Total T.W.	S.S.	Kero-sine T.W.
Hamilton, Ont.	16	6	22	*	17
Toronto, Ont.	16	6	22	*	17
Brandon, Man.	22.8	7	29.8	32.8	22.3
Winnipeg, Man.	21.2	7	28.2	31.2	20.7
Regina, Sask.	22.5	7	29.5	*	22
Saskatoon, Sask.	25.3	7	32.3	*	24.8
Edmonton, Alta.	23.5	7	30.5	33.5	24.2
Calgary, Alta.	21	7	28	31	21.5
Vancouver, B. C.	15	7	22	26	23
Montreal, Que.	13	6	19	*	17.5
St. John, N. B.	16	8	24	28	18.5
Halifax, N. S.	16	8	24	28	18.5

*Imperial Oil Ltd. transferred stations to dealers; no prices available.

Discounts to Divided Dealers: off s.s. prices: Maritime Provinces, 4c; Ontario, 2½c; Prairie Provinces and British Columbia, 3c, except Vancouver and Victoria, 4c; Quebec, divided dealers pay posted t.w. price. *To Undivided Dealers*: additional 1c discount throughout territory, except in Maritime Provinces.

Aviation Gasoline

Following are tank car and/or tank wagon prices of aviation gasoline in principal marketing territories (Stanavo aviation in all territories except Continental Oil.) Tax column includes 1c federal tax, and state tax; also municipal taxes as indicated in footnotes.

In Effect April 26, 1937

S. O. NEW JERSEY

	Tank Car	T.W.
Bayonne, N. J.	9.5	12
Baltimore, Md.	10	12
Washington, D. C.		12.6
Richmond, Va.		14.7
Greensboro, N. C.		15.2
Raleigh, N. C.		16.6
Charleston, W. Va.		14.7

COLONIAL BEACON OIL CO.

	T.W.
Brooklyn, N. Y.	12.8
Buffalo, N. Y.	14.1
Boston, Mass.	15

S. O. PENNSYLVANIA

Philadelphia, Pa.	12.3
Pittsburgh, Pa.	12.6

S. O. LOUISIANA

New Orleans, La.	13.3
Shreveport, La.	13.6

Prices in above four territories do not include state or federal taxes. They are for 74 octane grade aviation gasoline. An 80 octane product generally brings 0.5c premium and an 87 octane product, 1.5c premium over the 74 octane grade.

Note: S.a. prices in above four territories are generally 6c over t.w. prices. Above t.w. prices are net, with no discounts allowed for quantity purchases. T.w. prices are generally tank car price, plus freight, plus 2.5c per gal.

S. O. OHIO

Thru Ohio

	Consumer T.W.	Tax	Total Consumer T.W.
Stanavo Ethyl Aviation:			
73 octane	15.5	5	20.5
80 octane	16.5	5	21.5
87 octane	17.5	5	22.5

Discounts: For delivery on contract to hangar operators and resellers: 2c below commercial consumer posted t.w. price, shown above.

S. O. INDIANA

Chicago, Ill.	15	4	19
Detroit, Mich.	16.2	4	20.2
Milwaukee, Wisc.	15.3	5	20.3
Minneapolis, Minn.	15.4	4	19.4
St. Louis, Mo.	14.7	*3	17.7
Kansas City, Mo.	14.4	*4	18.4
Fargo, N. D.	16.4	4	20.4
Huron, S. D.	15.8	5	20.8

*Includes 1c city tax.

**Includes 0.1c to cover sales tax.

HUMBLE OIL & REFINING CO.

	Tank Car
Baytown, Tex. (exclusive of taxes)	8.5

CONTINENTAL OIL CO.

	Dealer	Tax	Total Dealer
Denver, Colo.	15.5	5	20.5
Cheyenne, Wyo.	16	5	21
Helena, Mont.	18.5	6	24.5
Salt Lake City, Utah	17.5	5	22.5
Albuquerque, N. M.	14	*6.5	20.5

*Includes city tax of 0.5c.

S. O. CALIFORNIA

Phoenix, Ariz.	17	6	23
Los Angeles, Cal.	15	4	19
San Francisco, Cal.	15.5	4	19.5
Reno, Nev.	17	5	22
Portland, Ore.	16	6	22
Seattle, Wash.	16	6	22
Spokane, Wash.	19	6	25

Note: For discounts, etc., see note under Standard and Flight gasoline above.

TANK WAGON, SERVICE STATION MARKETS

Tax column includes 1c federal tax, state gasoline tax, also city and county taxes as indicated in footnotes, and inspection fees, as shown in general footnote. These prices in effect April 26, 1937, as posted by principal marketing companies at their headquarters offices, but subject to later corrections

Naphtha (In Tank Wagon)

In Effect April 26, 1937

S. O. NEW JERSEY
***Posted Tank Wagon Prices**

	Mineral Spirits	V.M.&P.
Newark, N. J.	*13.5	*15
Baltimore, Md.	**15.5	..
Washington, D. C.	***15	..

*2c off to contract buyers taking 200 gals. or more.
**2c off to contract buyers taking under 100 gals. and 3c off to contract buyers taking over 100 gals.
***2c off to contract buyers.

SOCONY-VACUUM OIL CO.

Buffalo, N. Y.	*15	15
New York City	11	12
Rochester, N. Y.	†16	....
Syracuse, N. Y.	**16	....
Boston, Mass.	13.5	14
Bridgeport, Conn.	13.5	14
Hartford, Conn.	13	13.5
Providence, R. I.	13.5	14.5

*2c off for 50 gals. or more purchase; 3.5c off for 4,000 gals. or more.
†4c off for purchase of 150 gals. or more.
**Less 2c for 150 gals. or more.

ATLANTIC REFINING CO.

Philadelphia, Pa.	11.5	12.5
Lancaster, Pa.	13	14
Pittsburgh, Pa.	12.5	14.5

Note: Prices for Mineral Spirits also apply to Stoddard Solvent; and prices for V.M.&P. Naphtha apply also to Light Cleaners Naphtha.

S. O. OHIO

	S.R. Solvent	V.M.&P. Naphtha
Thru Ohio	13.25	13.75

Note: V.M.&P. Naphtha prices also apply on Dry Cleaners naphtha and special Varnolene; Varnolene and Sohio Solvent 0.5c below these prices. Discounts to contract consumers, off t.w. price: 300 to 999 gals., 0.5c; 1,000 to 2,499 gals., 0.75c; 2,500 to 4,999 gals., 1c; 5,000 or more gals., 1.5c.

S. O. INDIANA

(Prices include state and federal taxes)

	Oleum Spirits	V.M.&P. Naphtha	Stanisol
Chicago, Ill.	15.8	16.1	15.5
Detroit, Mich.	19.2	18.2	19.3
Kansas City, Mo.	14.9	15.9	14.9
St. Louis, Mo.	15.2	16.2	14.6
Milwaukee, Wis.	19.8	20.8	19.8
Minneapolis, Minn.	18.9	19.9	17

Note: Prices for V. M. & P. apply also to Light Cleaners Naphtha. All prices, with exception of Missouri points, include state tax. Prices shown are base prices, before discounts.

Naphtha (In Tank Cars)

In Tank Cars (F. o. b. refinery or seaboard terminal except Ohio, delivered price.)

	V.M.&P. Naphtha	Solvent
Baltimore	10.50	10
New York Harbor	10.5	9.5
Philadelphia district	10	9.5
Boston	10.5	10
Providence	10.5	10
Ohio points, delivered	9.25	*8.75

*This is on S.R. solvent.
Note: In Ohio, prices on D.C. naphtha and special Varnolene are same as V.M.&P., on Varnolene and Sohio Solvent, prices are 0.5c less than on V.M.&P.

Corrections

Notation of amount of change and dates not previously shown in table. Table in this issue is corrected to show these changes. Changes are on gasoline unless kerosine is indicated.

Socony-Vacuum Oil—Kerosine:

Buffalo, cut 0.25c, Mar. 1.

S. O. Indiana—Red Crown—Stanolind:

St. Joseph, dealer price cut 0.5c, April 19.

S. O. Kentucky—Crown and Kyso:

Paducah, up 0.5c, Apr. 5.
Montgomery and Atlanta, cut 1c, Mar. 27.

Kyso:

Vicksburg, up 1c, Apr. 12.
Augusta, cut 0.5c, Apr. 1.

Kerosine:

Miami, cut 2c, Mar. 25. Price subject to 2c discount.

S. O. Nebraska—Standard Red Crown:

McCook, dealer price up 3c, Apr. 16.

Fuel Oil

(Continued from page 30)

expected, and more than a few have predicted, lower prices for Nos. 1 to 4 oils, quotations for these grades have been very gradual in their downward movement.

The relative steadiness of these oils has been a reflection of the supply trend, and not because of any appreciable activity on the buying side of the market, according to reports.

Supplies of these oils were limited. The action of the fuel oil market the past heating oil season, it was believed, would prove to be the motivating factor in refiners' desire to hold fuel oils.

While the 1936-1937 heating oil season was comparatively mild, movement of fuel oils reached an all-time high. With record burner sales this year, and with one eye on the situation during the 1936-37 season, some suppliers were looking forward to a shortage of fuel oil next season, unless exceptionally mild weather should prevail.

Little change was noted in prices of most grades last week. The steadiness of kerosine, and the advent of farm demand has kept No. 1 distillate in good shape.

Industrial oils also were relatively steady, despite only a fair amount of buying. Occasional reports of price shading on Nos. 5 and 6 were heard last week.

Executive Promoted

NEW YORK, April 26. — R. L. Francis has been made operations assistant of the New York division of the Colonial Beacon Oil Co., it was announced today. He joined the company eight years ago as lubrication salesman in North Carolina and later served as lubrication assistant in the West Virginia and New York divisions.

R. N. Rose, lubrication salesman at Bridgeport, Conn., was appointed to succeed Mr. Francis.

$16,308,835.25 for U.S In March Oil Taxes

N. P. N. News Bureau

WASHINGTON, April 26.—Federal revenue in March from the four major taxes the oil industry carries was $16,308,835.25, an increase of $5,232,846.25 over March of last year, according to Treasury Department figures.

Federal gasoline tax revenue in March was $12,970,980.46, almost 50 per cent above the same month last year—$8,838,869.66.

Next highest was the return from the tax on lubricating oils $2,057,293.36 in March this year, compared with $1,393,367.92 a year previous.

Tax on transportation of oil by pipeline netted $1,195,186 this year, and $790,026 in March a year ago. Collections of the processing tax on crude petroleum also stepped up from $63,724 in March, 1936, to $85,375 this year.

Pa. Refinery Lubricating Oil Inventory

(Issued as of April 22 by National Petroleum Assoc.)

	Gallons
1. **Raw Long Residuum** (Includes all raw long residuum below, and not salable, as 600 fire)	1,088,430
2. **600 Steam Refined** (Includes all steam refined stock commonly sold or used as 600 and as raw material for bright stock)	6,194,275
3. **Other Steam Refined** (Not included in 1 and 2, above)	3,843,505
4. **Finished Dewaxed Long Res.**	2,875,827
5. **Bright Stock** (Does not include any material reported in 4, above)	14,684,215
6. **Viscous Neutral,** below 180 vis. but not below 142 vis. @ 100	6,387,625
7. **Viscous Neutral,** 180 vis. @ 100 and above	3,917,573

Crude Prices Posted

TULSA — On April 20 Sinclair Prairie Oil Marketing Co. posted prices for Ward and Winkler counties, West Texas, and Lea county, N. M., crudes, with prices ranging from $0.78 for below 26 gravity crude, to 36 gravity and above at $1.00, with a 2-cent differential applying for each succeeding degree of gravity. The schedule is the same as Humble's, except that Sinclair Prairie's top grade is 36 and above, whereas Humble's top grade is 40 and above, at $1.08.

SEABOARD MARKETS, EXPORT AND COASTWISE

Prices do not include Federal tax. Where $ mark is shown, prices are per barrel of 42 U. S. gallons

Eastern Domestic

(Prices in cents per gallon tank car lots, unless otherwise noted, f.o.b. refinery or seaboard terminal, representing majority of quotations or sales. Inter-refinery and export prices not included. Florida and S. Carolina inspection tax not included)

*MOTOR GASOLINE

Prices April 26	†60-64 Octane	†65 Octane and Above
New York harbor	‡7.00	‡7.25
New York harbor, barges	6.75	7.00
Philadelphia district	6.75 – 7.00	7.00 – 7.25
Baltimore district	6.75 – 7.00	7.00 – 7.25
Norfolk district	7.00	7.50
Wilmington, N. C. district	7.25	7.50
Charleston, S. C. district	7.25	7.50
Savannah district	7.25	7.50
Jacksonville district	7.25	7.50
Portland district	7.25	7.50
Boston district	7.00 – 7.25	7.25 – 7.50
Providence district	7.00 – 7.25	7.25 – 7.50

*Due to lack of companies offering U. S. Motor gasoline, 59 octane and below in the open market, prices for this grade are discontinued. Quotations nominally are 0.25c below those for 60-64 octane grade.

†Nominal.

‡Some suppliers quote 0.25c less for New Jersey shipment.

WATER WHITE KEROSINE

Prices April 26			
New York harbor	5.375– 5.50	Charleston, S. C. dist.	5.50
N. Y. harbor, barges	5.125– 5.25	Savannah district	5.50 – 5.75
Philadelphia district	5.50	Jacksonville district	5.50 – 5.75
Baltimore district	5.50	Portland district	6.00
Norfolk district	5.50	Boston district	5.50 – 5.75
Wilmington, N. C.	5.50	Providence district	5.50 – 5.75

*FUEL OILS

Prices April 26	New York harbor	New York harbor, barges	Philadelphia district
No. 1	5.375– 5.50	5.125– 5.25	5.50
Nos. 2-3	4.50 – 4.625	4.375– 4.50	4.75
No. 4	4.375– 4.50	4.25 – 4.375	4.25 – 4.75
No. 5 (per barrel)	†$1.40 – $1.60	.....	$1.47
No. 6 (per barrel)	†$1.20 – $1.50	.....	$1.20

Prices April 26	Baltimore district	Boston district	Providence district
No. 1	5.50	5.50 – 5.75	5.50 – 5.75
Nos. 2-3	4.625	4.75	4.75
No. 4	4.375	4.75	4.50
No. 5 (per barrel)	$1.40	$1.50	.....
No. 6 (per barrel)	$1.20	$1.20	.....

*Fuel oils meet specifications of U. S. Commercial Standards CS12-35.

†Represents posted prices. Spot business generally reported around $1.30 bbl. for No. 6 oil.

	Bunker Oil Grade C Per Barrel	Diesel Oil Ships' Bunkers Per Barrel	Gas Oil 28-34 Gravity Per gallon	Diesel Oil Shore Plants Per gallon
New York harbor	*$1.20	**$1.85	4.75	4.75
Philadelphia dist.	*$1.20	*$1.85-$2.00	4.75	.....
Baltimore district	*$1.20	**$1.85	4.75	.....
Norfolk district	*$1.20	*$1.9425	4.75	.....
Charleston district	$1.15	$1.85	.....	.....
Savannah district	*$1.15	$1.995	.....	4.75
Jacksonville dist.	*$1.15	$1.995	.....	4.75
Tampa district	*$1.15	$1.995	.....	.....
Portland district	$1.30	$1.95	.....	.....
Boston district	*$1.20	**$1.85	.....	.....
Providence district	$1.20	$1.85	.....	.....

*For barging add 5c per bbl.
**For barging add 6.5c per bbl.

Pacific Export

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

Prices—	April 26	April 19	April 12
53-55 U. S. Motor	5.00 – 5.50	5.00 – 5.50	5.00 – 5.50
400 e.p. blend 65 Octane and above	5.25 – 6.00	5.25 – 6.00	5.25 – 6.00
38-40 w.w. kerosine, 150 fire point	4.50 – 5.00	4.50 – 5.00	4.50 – 5.00
41-43 w.w. kerosine	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00
44 water white kerosine	5.00	5.00	5.00
Prime white kerosine	4.25 – 4.50	4.25 – 4.50	4.25 – 4.50
In Cargo lots, per barrel			
Diesel fuel oil, above 23.9°	$1.16 –$1.26	$1.16 –$1.26	$1.16 –$1.26
Diesel fuel oil, under 23.9°	$1.06 –$1.10	$1.06 –$1.10	$1.06 –$1.10
30-34 gas oil	$1.25 –$1.35	$1.25 –$1.35	$1.25 –$1.35
Grade C fuel oil	$0.85 –$0.95	$0.85 –$0.95	$0.85 –$0.95

Pacific Export (cont'd)	April 26	April 19	April 12
In Ships' Bunkers, or deep tank lots, per barrel:			
Diesel fuel oil, above 23.9 gravity	$1.25 –$1.35	$1.25 –$1.35	$1.25 –$1.35
Diesel, under 23.9 gravity	$1.20 –$1.25	$1.20 –$1.25	$1.20 –$1.25
Grade C fuel oil	$0.90 –$0.95	$0.90 –$0.95	$0.90 –$0.95
Cased Goods:			
Gasoline, U. S. Motor	$1.35 –$1.50	$1.35 –$1.50	$1.35 –$1.50
Gasoline, 400 e.p. blend	$1.45 –$1.65	$1.45 –$1.65	$1.45 –$1.65
38-40 w.w. kerosine, 150 fire point	$1.20 –$1.35	$1.20 –$1.35	$1.20 –$1.35
Kerosine, prime white	$1.15 –$1.25	$1.15 –$1.25	$1.15 –$1.25

New York Export

(Prices in cents per gallon in barrels, F.a.s. New York)

CYLINDER OILS (Pennsylvania Products)

Bright stock:			
Light, 25 pour test	32.00	32.00	32.00
Dark, 25 pour test	31.50	31.50	31.50
Neutral oil:			
200 3 color, 25 pour test	33.00 –33.50	32.00 –32.50	32.00 –32.50
150 3 color, 25 pour test	28.50 –29.00	28.00 –28.50	28.00 –28.50
600 Warren E filtered	26.00 –26.50	26.00 –26.50	26.00 –26.50
600 stm. rfd., unfiltered	24.00 –24.50	24.00 –24.50	24.00 –24.50
650 stm. rfd., unfiltered	25.50 –26.00	25.50 –26.00	25.50 –26.00
600 flash, steam refined	26.50 –27.00	26.50 –27.00	26.50 –27.00
630 flash, steam refined	31.00 –31.50	31.00 –31.50	31.00 –31.50

Wax Domestic *and* Export

(Prices in cents per pound. Tests made by A. S. T. M. methods. Melting points shown below, however, are A. M. P., 3° higher than A. S. T. M. (E. M. P.) melting points. Export prices are f.a.s. carload lots. Domestic prices are f.o.b. refineries in New York and New Orleans districts, in bags, carload lots, with 0.2c discount allowed for shipment in bulk. Scale solid and fully refined slabs in bags.)

	New York		New Orleans	
Prices April 26	Domestic	Export	Domestic	Export
124-6 Y.C. scale	2.60 – 2.65	2.60 – 2.65	†2.65	†2.65
122-4 W.C. scale	†2.70 – 2.75	†2.70 – 2.75	†2.70 – 2.75	†2.70 – 2.75
124-6 W.C. scale	†2.70 – 2.75	†2.70 – 2.75	†2.70 – 2.75	†2.70 – 2.75
123-5 Fully refined	4.45	4.125	4.45	4.125
125-7 Fully refined	4.55	4.25	4.55	4.25
128-30 Fully refined	4.80	4.50	4.80	4.50
130-2 Fully refined	5.05	4.75	5.05	4.75
133-5 Fully refined	*5.35	5.25	*5.35	5.25
135-7 Fully refined	*5.60	5.50	.....	.....

*Shipment either in bags or in bulk.

†Nominal.

Gulf Coast

(Prices are f.o.b. ship at Gulf oil terminals representing opinions of majority of traders, except prices specified to the contrary. Prices cover bulk shipments of 20,000 barrels or more, unless otherwise noted.)

MOTOR GASOLINE

For Domestic Shipment

Prices—	April 26	April 19	April 12
59 octane and below	5.875	5.75	5.75
60-64 octane number	6.00 – 6.125	6.00 – 6.125	6.00
65 octane and above	6.25 – 6.375	6.25 – 6.375	6.25

FUEL OILS

No. 1 Fuel oil	4.50 – 4.75	4.75	4.75
No. 2 Fuel oil	4.00	4.00	3.875– 4.00
No. 4 Fuel oil	3.875	3.875	3.75

KEROSINE

41-43 w.w.	4.50 – 4.75	4.75	4.75

GASOLINE

For Export Shipment

U. S. Motor gasoline	5.875	5.75	5.75
60-62, 400 e.p. gasoline	6.00	5.875	5.875
61-63, 390 e.p. gasoline	6.125	6.00	6.00
64-66, 375 e.p. gasoline	6.25	6.125	6.125

KEROSINE

44 water white	4.75 – 5.00	5.00	5.00
41-43 water white	4.50	4.75	4.75
41-43 prime white	4.50	4.625	4.625

(Continued on next page)

SEABOARD MARKETS, EXPORT AND COASTWISE

Prices do not include Federal tax. Where $ mark is shown, prices are per barrel of 42 U. S. gallons

(Continued from preceding page)

GAS AND BUNKER OILS

For Domestic and/or Export Shipment

Prices—	April 26	April 19	April 12
*26-30 translucent gas oil	3.875	3.75	3.625- 3.75
*30 plus translucent gas oil	4.00	3.85	3.75 - 3.875
*30 plus transp. gas oil	4.00	3.875	3.75 - 3.875
Diesel Oil Ship's bunkers	$1.65	$1.65	$1.65
Grade C bunker oil, for ship's bunkers, per bbl.	†$1.00	†$1.00	†$1.00
Grade C bunker oil, per bbl. in cargoes	$0.90 -$0.95	$0.90 -$0.95	$0.90 -$0.95

*Less than ½ of 1% sulphur. †Lighterage 5c per bbl. additional.

MEXICAN CRUDE AND BUNKER OILS

(F.o.b. Steamer, Tampico)

Heavy Panuco crude, taxes to be paid, per bbl.	*$1.35	*$1.35	*$1.35
Grade C bunker oil, ship's bunkers, taxes paid, per bbl.	$1.00	$1.00	$1.00

*Nominal.

MID-CONTINENT LUBRICATING OILS

(Prices in cents per gallon in bbls. f.a.s. Gulf oil terminals. In drums and new barrels, 0.5c to 1c higher per gal. in some instances.)

190-200 vis. D 210 bright stock	28.50	28.50	28.50
150-160 vis. D 210 bright stock:			
0-10 pour point	25.50	25.50	25.50
10-25 pour point	25.00	25.00	25.00
25-40 pour point	24.50	24.50	24.50
150-160 vis. E 210 brt. stock	24.50	24.50	24.50
120 vis. D 210 bright stock	23.50	23.50	23.50
180 vis. No. 3 color neutral Oil:			
0-10 pour point	16.50	16.50	16.50
15-30 pour point	16.00	16.00	16.00
200 vis. No. 3 color neutral Oil:			
0-10 pour point	17.00	17.00	17.00
15-30 pour point	16.50	16.50	16.50
600 s.r. olive green	12.50	12.50	12.50
600 s.r. dark green	11.00	11.00	11.00
631 s.r.	23.00	23.00	23.00

Prices—	April 26	April 19	April 12

SOUTH TEXAS LUBRICATING OILS

(Viscosity at 100° F., pour point 0. Tanker, f.o.b. Gulf oil terminals, for export shipment)

Unfillerable Pale Oils: Vis. Color			
100 No. 3	5.25 - 5.50	5.25 - 5.50	5.25 - 5.50
200 No. 3	6.00 - 6.50	6.00 - 6.50	6.00 - 6.50
300 No. 3	6.50 - 7.00	6.50 - 7.00	6.50 - 7.00
500 No. 3½	7.625- 7.875	7.625- 7.875	7.625- 7.875
750 No. 4	8.75 - 9.00	8.75 - 9.00	8.75 - 9.00
1200 No. 4	9.50 - 9.75	9.50 - 9.75	9.50 - 9.75
2000 No. 4	10.00 -10.125	10.00 -10.125	10.00 -10.125
Red Oils: Vis. Color			
100 No. 5-6	5.00 - 5.25	5.00 - 5.25	5.00 - 5.25
200 No. 5-6	5.875- 6.50	5.875- 6.50	5.875- 6.50
300 No. 5-6	6.25 - 6.75	6.25 - 6.75	6.25 - 6.75
500 No. 5-6	7.50 - 7.625	7.50 - 7.625	7.50 - 7.625
750 No. 5-6	8.75 - 9.00	8.75 - 9.00	8.75 - 9.00
1200 No. 5-6	9.50	9.50	9.50
2000 No. 5-6	10.00	10.00	10.00

Note: Red oil prices shown above cover oils with green cast; prices for blue cast red oils are slightly lower in some cases.

Tanker Rates

(Approximate tanker freight rates to Continental ports, in shillings per ton of 2240 pounds. British sterling; to U. S. ports cents per barrel)

Rates—April 26	Crude &/or Fuel Last Paid	Crude &/or Fuel Owners Ask	Refined Oil &/or Spirits Last Paid	Refined Oil &/or Spirits Owners Ask
Gulf-U.K./Cont.*	34/	35/-38/	35/6	36/-37/
Aruba-U.K./Cont.*	29/	30/-32/	30/	32/-33/
Gulf-N. Atlantic** (not E. of N. Y.):				
Heavy Crude & Fuel, (10 to 19.9 gravity)	†53c	†53c-55c	....	....
Light Crude, (30 gravity or lighter)	48c	†48c-50c	....	....
Gasoline	....	....	†35c	†42c-43c
Kerosine	....	....	†36c	†43c
Light Fuel	....	....	†37c	†44c

Note: Dirty boat quotations are enlarged to cover, "Fuel and Light Crude" quotations.

*Continental ports in range between Bordeaux and Hamburg, both inclusive.

**Venezuela loading same rate; Tampico 2c to 3c per bbl. additional.

†Nominal

Eastern

(Continued from page 30)

counties in New Jersey made additional advances and brought their selling prices for regular "branded" gasolines to 17.5 cents, including taxes. "Unbranded" gasolines were reported selling at 16 cents, including taxes, at many stations in these two counties. Tank wagon selling prices to undivided dealers on regular "branded" grades were 8 cents, exclusive of taxes, in most of northern New Jersey.

Suppliers at New York harbor were asking 7.25 cents for 65 octane and above gasoline for unrestricted tank car shipment, as the week ended. In some cases it was indicated that 7 cents could be done for New Jersey shipment, where much of the distribution is by truck for short haul.

Gasoline was reported moving to contract accounts at under the open spot market prices. Demand has been good the past few weeks, suppliers said, although the bulk of the shipments continued to be against contracts. Generally speaking, suppliers were doing little business in the open spot market.

Kerosine was in fairly active demand and tank car prices were up 0.125 cent in some quarters of the New York harbor market.

Coastal

Market Bullish

N. P. N. News Bureau

NEW YORK, April 26

● The general trend of the Gulf Coastal cargo market continued bullish last week. Gas oil and gasoline prices were higher and while a cargo sale of kerosine was reported at under the previously quoted market, indications were that it also was in better shape marketwise.

The sale of 41-43 w.w. kerosine was reported late in the week at 4.5 cents a gallon, f.o.b. Gulf, for export lifting in late May or early June. Opinion was expressed, however, that this was the only "distress" cargo of kerosine on the market and suppliers would probably quote higher prices for later delivery.

Export demand for gas oil moderated somewhat last week but several inquiries remained in the market. Reports in usually reliable quarters were that two cargoes of 30 plus gas oil had been sold for export lifting at 4 cents, f.o.b. the Gulf, but confirmation was lacking. However, no cargoes of this grade were reported available at under that figure.

A number of reasons were advanced by traders for the excellent export demand for gas oil which has prevailed the past few months. Increased use on the Continent for diesel fuel purposes and for cracking were probably the outstanding factors, they said. Another factor was that Russia and Roumania appeared to be less interested in supplying these products than they were during 1936.

Gasoline was reported closely held at the Gulf and export quotations generally were up 0.125 cent. Quotations for 64-66, 375 e.p. gasoline were mostly at 6.25 cents as the week ended.

Wax

Scale Quiet

NEW YORK, April 26.—Scale wax market was quiet last week. No particular change was reported from the general situation of the preceding few weeks. Traders said there was a fair amount of business and that suppliers were not overstocked with scale, and prices were steady.

Quoted prices for 124-126 white crude scale at New York ranged from around 2.65 to 2.8 cents a pound, with most quotations at 2.7 to 2.75 cents.

Fully refined wax again showed no change.

CRUDE OIL MARKETS

Prices in $ per bbl. of 42 U. S. gals. at the well. A. P. I. gravity. Prices are effective as of 7 a. m. of dates as given

EASTERN FIELDS

Posted by Joseph Seep Purchasing Agency

(Effective Feb. 24, 1937, except Corning Jan. 29, 1937)

Penna. Grade Oil in Southwest Penna. Pipe Lines.....$2.42
Penna. Grade Oil in Eureka Pipe Lines (West Virginia).....$2.37
Penna. Grade Oil in Buckeye Pipe Lines (Mackaburg, O.).....$2.22
Corning Oil in Buckeye Pipe Lines (Ohio)...$1.42

Posted by Other Companies

Tide Water Pipe Co., Ltd. Bradford-Allegany district (Penna. and N. Y.) (Effective Feb. 24, 1937).....$2.67
The Pennzoil Co.: (Effective Feb. 24, 1937) Penna. Grade Oil in National Transit Lines$2.67
Ashland Oil & Transportation Co.: Somerset Oil in Ashland Lines (Ky.): (Effective Jan. 28, 1937)
Big Sandy River.....$1.42
Kentucky River.....$1.50

*The Pennzoil Co. posts $2.67 in Cochran, Franklin, Hamilton and Doolittle, Pa. fields; prices in other lower districts range down to $2.62 per bbl. at well.

MICHIGAN

Posted by Pure Oil Co.

Midland, Midland County (Jan. 29, 1937)...$1.42

Posted by Simrall Pipe Line Corp.

(Effective Jan. 29, 1937)

West Branch, Arenac, and equal grades.....$1.26
Beaverton, Crystal, Greendale, Porter and equal grades.....$1.42

(Effective March 16, 1937)

Buckeye.....$1.395

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

(Effective Jan. 28, 1937)

Illinois, Princeton.....$1.35
Lima.....$1.25
Owensboro (Western Ky.).....$1.40

Posted by Stoll Oil Refining Co.

(Effective Feb. 1, 1937)

Stoll Pipe Line Oil (Ky.).....$1.40

CANADIAN FIELDS

Posted by Imperial Oil Limited

Western Ontario

(Effective Sept. 9, 1933)

Petrolia.....$2.10
Oil Springs.....$2.17

Alberta—Turner Valley

(Prices f.o.b. field tankage)

(Effective Dec. 16, 1936)

Clear Naphtha.....$2.60

Crude Oil & Discolored Naphtha

40-40.9°	$1.55	53-53.9	$1.94
41-41.9	1.58	54-54.9	1.97
42-42.9	1.61	55-55.9	2.00
43-43.9	1.64	56-56.9	2.03
44-44.9	1.67	57-57.9	2.06
45-45.9	1.70	58-58.9	2.09
46-46.9	1.73	59-59.9	2.12
47-47.9	1.76	60-60.9	2.15
48-48.9	1.79	61-61.9	2.18
49-49.9	1.82	62-62.9	2.21
50-50.9	1.85	63-63.9	2.24
51-51.9	1.88	64-64.9	2.27
52-52.9	1.91	65° & higher, for discolored naphtha only	2.36

Note: Clear naphtha: 22 color; 10 lbs. vapor pressure, Reid method; 90% recovery; end point, 410°. Discolored naphtha: same specifications as for clear naphtha except color.

MID-CONTINENT

Posted by Stanolind Crude Oil Purchasing Co., Jan. 28, 1937

	(In Oklahoma-Kansas)	(In North-North Central Texas)
Below 29	$1.06	$0.96
29-29.9	1.08	0.98
30-30.9	1.10	1.00
31-31.9	1.12	1.02
32-32.9	1.14	1.04
33-33.9	1.16	1.06
34-34.9	1.18	1.08
35-35.9	1.20	1.10
36-36.9	1.22	1.12
37-37.9	1.24	1.14
38-38.9	1.26	1.16
39-39.9	1.28	1.18
40 & above	1.30	1.20

Above Stanolind prices met as follows:

Jan. 28, Continental Oil Co. met in Okla., Kans., and North Texas. Sinclair-Prairie met in North Texas and North Central Texas, Jan. 28, Stanolind's North Texas schedule. Same date, The Texas Co. met in North-North Central Texas.

Note: Stanolind prices in Okla.-Kans. are for quantities computed by 97% tank tables. In Texas, 99% tank tables are used, volume corrected to 60° F., and deduction for full b.s. & w. content.

Posted by Carter Oil Co.

In Oklahoma

(Effective Jan. 28, 1937)

Below 25	$0.98	33-33.9	$1.16
25-25.9	1.00	34-34.9	1.18
26-26.9	1.02	35-35.9	1.20
27-27.9	1.04	36-36.9	1.22
28-28.9	1.06	37-37.9	1.24
29-29.9	1.08	38-38.9	1.26
30-30.9	1.10	39-39.9	1.28
31-31.9	1.12	40 and above	1.30
32-32.9	1.14		

Above Carter schedule met Jan. 28 by the following companies: Sinclair-Prairie, Shell and Barnsdall in Oklahoma-Kansas; Skelly Oil in Kansas; Tide Water in Oklahoma; Pure Oil in Oklahoma-Kansas, beginning with below 24 at $0.98 and ending with 40 & above at $1.30.

Posted by Magnolia Petroleum Co.

(Effective Jan. 28, 1937)

In Oklahoma, same schedule as Carter Oil, which see above, beginning with below 25, at $0.98 and ending with 40 & above, at $1.30.

In Texas: North and North Central, including Burkburnett, Archer, Henrietta, Electra, Comanche and Olden, same gravity and price schedule as Stanolind in North Texas, which see under Stanolind, beginning with below 29 at $0.96 and ending with 40 and above, at $1.20.

Posted by Humble Oil & Refining Co.

TEXAS FIELDS

(*West Central Texas)

(Effective Jan. 28, 1937)

Below 29	$0.96	35-35.9	$1.10
29-29.9	0.98	36-36.9	1.12
30-30.9	1.00	37-37.9	1.14
31-31.9	1.02	38-38.9	1.16
32-32.9	1.04	39-39.9	1.18
33-33.9	1.06	40 and above	1.20
34-34.9	1.08		

*Includes Brown, Callahan, Coleman, Comanche, Eastland, Fisher, Haskell, Jones, Shackelford, Stephens, Throckmorton and Young counties.

Shell Petroleum Corp., effective Jan. 28, posts Humble's above schedule on Fisher county crude, plus these five lower grades, beginning with below 25 gravity at $0.88; 25-25.9, $0.90; 26-26.9, $0.92; 27-27.9, $0.94, and 28-28.9, $0.96; rest of schedule same as Humble's in West Central Texas.

†Effective Dec. 1, 1934, Humble prices are based on 99% tank tables at 60F. Allowance or deduction of 1% is made for each 25° change in temperature above or below 60F.

East Central Texas

(Effective Jan. 28, 1937)

Below 29	$1.03	35-35.9	$1.17
29-29.9	1.05	36-36.9	1.19
30-30.9	1.07	37-37.9	1.21
31-31.9	1.09	38-38.9	1.23
32-32.9	1.11	39-39.9	1.25
33-33.9	1.13	40 and above	1.27
34-34.9	1.15		

*Including Anderson, Cherokee, Limestone, Navarro counties.

Same date, Sinclair-Prairie met in Mexia Humble's above schedule.

PANHANDLE TEXAS

Posted by Humble Oil & Refining Co.

(Effective Jan. 28, 1937)

	Gray County	Carson-Hutchinson
Below 35	$0.96	$0.91
35-35.9	0.98	0.93
36-36.9	1.00	0.95
37-37.9	1.02	0.97
38-38.9	1.04	0.99
39-39.9	1.06	1.01
40 & above	1.08	1.03

Jan. 28, above prices met by Sinclair-Prairie and Magnolia in the entire area and by Continental in Carson-Hutchinson and by Texas Co. in Panhandle Sweet, same as Humble's Gray Co. and on Panhandle Sour, same as Carson-Hutchinson.

EAST TEXAS

(Effective Jan. 28, 1937)

Stanolind, Humble, Shell, Sinclair-Prairie, Texas Co., and Magnolia.....$1.27

Shell also posted on Jan. 28, in Livingston area, Polk County, Texas, $1.27.

NORTHEAST TEXAS

(Posted by Humble, Jan. 28, 1937)

Talco.....$0.73

(Posted by Magnolia, Jan. 28, 1937)

Cass County and Panola County, Tex: Same gravity and price schedule as S. O. Louisiana posts for Rodessa, La., which see under that company.

(Posted by The Texas Co., Jan. 28, 1937)

Cass County.....$1.25

WEST TEXAS AND NEW MEXICO

Posted by Humble Oil & Refining Co.

(Effective Jan. 28, 1937)

(Including Andrews, Crane, Crockett, Ector, Glasscock, Howard, Winkler and Upton Counties, Texas and Lea county, New Mexico).

Below 26	$0.78	33-33.9	$0.94
26-26.9	0.80	34-34.9	0.96
27-27.9	0.82	35-35.9	0.98
28-28.9	0.84	36-36.9	1.00
29-29.9	0.86	37-37.9	1.02
30-30.9	0.88	38-38.9	1.04
31-31.9	0.90	39-39.9	1.06
32-32.9	0.92	40 & above	1.08

Pecos, West Texas.....$0.91

Jan. 28, Magnolia met Humble in Crane, Upton, Howard, Glasscock, Mitchell and Winker.

Shell Petroleum Corp., on Jan. 28, met Humble in Crane, Glasscock, Howard, Pecos (except Yates shallow pool), Winkler, and Upton counties, Tex., and in Lea County, N. Mex. On Jan. 28, Shell posted in Yates shallow pool in Pecos county, Tex., $0.81.

Jan. 28, Stanolind Oil & Gas Co. met Humble in Hendrick field, Winkler county.

Jan. 28, Texas Co. met Humble in Ward and Winkler counties, Tex., and Lea County, N. M.

April 20, 1937, Sinclair Prairie met Humble in Ward and Winkler, Tex. and Lea, N. M., counties, except that its gravity schedule ends with 36 and above, at $1.00.

Posted by Continental Oil Co.

(Effective Jan. 28, 1937)

Artesia, Jackson and Maljamar pools, N. M...$0.90

COLORADO

(Posted by Continental Oil Co., Effective Jan. 28, 1937)

Ft. Collins and Wellington

Below 29	$1.01	35-35.9	$1.15
29-29.9	1.03	36-36.9	1.17
30-30.9	1.05	37-37.9	1.19
31-31.9	1.07	38-38.9	1.21
32-32.9	1.09	39-39.9	1.23
33-33.9	1.11	40 & above	1.25
34-34.9	1.13		

Cannon City and Florence, Col.....$1.10

SOUTH AND SOUTHWEST TEXAS

Posted by Humble Oil & Refining Co.

(Effective Jan. 28, 1937)

Carroll, Clark, Darst Creek, Hilbig, Salt Flat and Zoboroski fields.....$1.09
Pettus.....$1.37 Van Zandt.....$1.10

(Effective Nov. 1, 1936)

Heyser heavy...$0.90 Placedo heavy..$0.90
Heyser light.....1.15 Taft.....0.95

Shell Pet. Corp. on Jan. 28, posted $1.09 in Salt Flat district, Tex.

Anahuac, Dickinson, Flour Bluff and Turtlebay

(Effective Jan. 28, 1937)

Below 31	$1.16	36-36.9	$1.28
31-31.9	1.18	37-37.9	1.30
32-32.9	1.20	38-38.9	1.32
33-33.9	1.22	39-39.9	1.34
34-34.9	1.24	40 and above	1.36
35-35.9	1.26		

Jan. 28, Magnolia met Humble in Darst Creek; posted $1.00 in Luling; $1.12 in Lytton Springs; $1.27 for Cleveland, Liberty county, Tex.; $1.15 in Hardin, Liberty county, Tex.

Jan. 28, 1937, The Texas Co. met Humble in Darst Creek, and posted $1.00 for Duval county, Tex.

Posted by Humble

Conroe, Raccoon Bend, Tomball and Satsuma

(Deep sand crudes)

(Effective Jan. 28, 1937)

Below 29	$1.20	35-35.9	$1.34
29-29.9	1.22	36-36.9	1.36
30-30.9	1.24	37-37.9	1.38
31-31.9	1.26	38-38.9	1.40
32-32.9	1.28	39-39.9	1.42
33-33.9	1.30	40 & above	1.44
34-34.9	1.32		

Jan. 28, Magnolia met Humble in Tomball and Texas Co. met Humble in Conroe, beginning with 35-35.9 gravity.

Posted by Humble

Mirando, Heavy and Ligh and Sam Fordyce

(Effective Jan. 28, 1937)

Below 21	$0.90	31-31.9	$1.18
21-21.9	0.93	32-32.9	1.20
22-22.9	0.96	33-33.9	1.22
23-23.9	0.99	34-34.9	1.24
24-24.9	1.02	35-35.9	1.26
25-25.9	1.05	36-36.9	1.28
26-26.9	1.08	37-37.9	1.30
27-27.9	1.10	38-38.9	1.32
28-28.9	1.12	39-39.9	1.34
29-29.9	1.14	40 & above	1.36
30-30.9	1.16		

Jan. 28, Magnolia met Humble in Mirando.

(Continued on next page)

CRUDE OIL MARKETS

(Continued from preceding page)

NORTH LOUISIANA-ARKANSAS

Posted by Standard Oil Co. of Louisiana

(Effective Jan. 28, 1937)

(In Caddo, Homer, Haynesville, Sabine, De Soto, Sarepta, Carterville, El Dorado, Bunkie, and Miller county).

Below 25	$0.90	33-33.9	$1.08
25-25.9	0.92	34-34.9	1.10
26-26.9	0.94	35-35.9	1.12
27-27.9	0.96	36-36.9	1.14
28-28.9	0.98	37-37.9	1.16
29-29.9	1.00	38-38.9	1.18
30-30.9	1.02	39-39.9	1.20
31-31.9	1.04	40 and above	1.22
32-32.9	1.06		

Rodessa, La.

(Effective Jan. 28, 1937)

Below 25	$0.93	33-33.9	$1.11
25-25.9	0.95	34-34.9	1.13
26-26.9	0.97	35-35.9	1.15
27-27.9	0.99	36-36.9	1.17
28-28.9	1.01	37-37.9	1.19
29-29.9	1.03	38-38.9	1.21
30-30.9	1.05	39-39.9	1.23
31-31.9	1.07	40 and above	1.25
32-32.9	1.09		

Choctaw and Darrow

Jan. 28, 1937, initial posting; same schedule as Humble posts in Mirando, Tex., which see.

Smackover, Ark. $0.90
Urania, La. (La. Oil Refg. Co., Jan. 10, '36) ... 0.97
Tepetate, La. (Continental Oil, Jan. 28, '37) ... 1.24

Jan. 28, 1937, Magnolia met S. O. La.'s No. La.-Ark. gravity and price schedule in Pine Island, Haynesville, Bull Bayou and Cotton Valley, La., and in Eldorado and Rainbow districts, Ark.; and met S. O. La.'s Rodessa prices; and in Lockport, Iowa, Cameron Meadow, La., posted Humble's gravity and price schedule on Mirando.

Jan. 28, The Texas Co. met S. O. La. in N. La., except that its gravity schedule begins with below 27 at $0.94. It posted $1.37 for Garden Island, La., $1.24 for LaFitte, La. and $0.90 for Smackover.

*GULF COASTAL FIELDS

Posted by Humble Oil & Refining Co. and The Texas Co.

(Effective Jan. 28, 1937)

	Humble	Texas
Below 18	$0.95	$0.90
18-18.9	for	0.92
19-19.9	below	0.94
20-20.9	21°	0.96
21-21.9	0.98	0.98
22-22.9	1.01	1.01
23-23.9	1.04	1.04
24-24.9	1.07	1.07
25-25.9	1.10	1.10
26-26.9	1.13	1.13
27-27.9	1.15	1.15
28-28.9	1.17	1.17
29-29.9	1.19	1.19
30-30.9	1.21	1.21
31-31.9	1.23	1.23
32-32.9	1.25	1.25
33-33.9	1.27	1.27
34-34.9	1.29	1.29
35-35.9	1.31	for
36-36.9	1.33	oil
37-37.9	1.35	34°
38-38.9	1.37	and
39-39.9	1.39	above.
40 and above	1.41	....

Effective Dec. 1, 1934, Humble prices are based on 99% tank tables at 60F. Allowance or deduction of 1% is made for each 25° change in temperature above or below 60F.

*Includes these fields: Barbers Hill, Goose Creek, Hull, Humble, Liberty, Moss Bluff, Mykawa, Orange, Pierce Junction, Plymouth, Rabbs Ridge, Raccoon Bend (shallow sand), Refugio light and heavy, Saxet, Sour Lake, Spindletop, Sugarland and West Columbia.

Jan. 28, Sinclair-Prairie met above Humble schedule in full.

ROCKY MOUNTAIN FIELDS

Posted by Stanolind Oil & Gas Co.

(Effective Jan. 28, 1937)

Salt Creek, Midway and Dutton Creek, Wyo., same schedule as Stanolind posts in Oklahoma, Kansas which see under Mid-Continent crude on previous page.

Greybull-Torchlight	$1.30
Iles, light, Col.	1.18
Iles, heavy	1.12
Hogback, N. M.	1.33
Big Muddy	1.23
Elk Basin, light	1.30
Grass Creek, light	1.30
Frannie light	0.82

(Effective Nov. 4, 1936)

Grass Creek, heavy	$0.62
Frannie heavy	0.62
Hamilton Dome, Wyo.	0.57

Pondera, Mont., (Postings discontinued July 1, 1936, but Stanolind pays price posted by Ohio Oil for Kevin-Sunburst, less 20c per bbl.)

Posted by Ohio Oil Co.

(Effective Jan. 28, 1937)

Elk Basin, Wyo.	$1.30
Grass Creek, light	1.30
Rock Creek	1.205
Lance Creek	0.97
Sunburst, Mont.	1.20

Posted by *International Refg. Co.

Cut Bank, Mont.

(Effective Jan. 28, 1937)

Below 35°	$1.34	38-38.9	$1.42
35-35.9	1.36	39-39.9	1.44
36-36.9	1.38	40 and above	1.46
37-37.9	1.40		

*Texas Co. subsidiary.

Posted by Continental Oil Co.

(Effective Jan. 28, 1937)

Cat Creek, Mont.	$1.40
Big Muddy, Wyo.	1.18
Lance Creek, Wyo.	0.97

CALIFORNIA, *Posted by Standard Oil of California*

All gravities above those quoted take highest price offered in the field. Prices effective Feb. 26, 1936, except Huntington Beach, Playa del Rey, Santa Fe Springs, Kern Front, Signal Hill (Long Beach) effective March 7, 1936, and Elk Hills, effective June 22, 1936

Gravity	Signal Hill (Long Beach)	Seal Beach	Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda Brea Canon	Athens Rosecrans	Dominguez	Torrance	Richfield	Whittier East Coyote (La Habra)	Montebello	West Coyote Hills	Santa Fe Springs	‡Newhall and others	Mountain View	Elk Hills	Buena Vista Hills **Midway-Sunset	Lakeview Area	Lost Hills	Coalinga	Wheeler Ridge
14-14.9	$0.80	0.79	0.74	0.78	0.79	0.80	0.76	....	....	0.80	0.76	0.76	0.77	0.78	....	0.70	....	0.70	0.70	0.65	0.70	0.70	....
15-15.9	.80	.79	.74	.78	.79	.80	.76	....	....	.80	.76	.76	.77	.78	....	.70	....	.70	.70	.65	.70	.70	....
16-16.9	.80	.79	.74	.78	.79	.80	.76	....	....	.80	.76	.76	.77	.78	....	.70	....	.70	.70	.65	.70	.70	....
17-17.9	.80	.79	.74	.78	.81	.80	.76	....	....	.80	.76	.76	.77	.78	....	.70	....	.70	.70	.65	.70	.70	....
18-18.9	.80	.79	.74	.78	.84	.80	.78	....	....	.82	.76	.76	.77	.78	....	.70	....	.70	.70	.65	.70	.70	....
19-19.9	.82	.79	.74	.82	.87	.84	.81	....	....	.85	.76	.78	.77	.78	....	.70	.70	.74	.74	.66	.74	.71	.70
20-20.9	.85	.79	.74	.85	.90	.88	.84	....	....	.88	.78	.82	.77	.80	....	....	.70	.78	.78	.68	.78	.72	.70
21-21.9	.88	.79	.74	.89	.93	.93	.88	....	....	.91	.80	.85	.77	.84	.78	....	.73	.82	.82	.71	.82	.74	.70
22-22.9	.92	.82	.74	.92	.96	.98	.92	....	....	.93	.84	.89	.79	.88	.78	....	.77	.87	.87	.74	.86	.78	.72
23-23.9	.95	.86	.77	.96	.99	1.02	.96	.84	.79	.96	.88	.93	.82	.92	.78	....	.80	.92	.92	.77	.90	.82	.76
24-24.9	.99	.91	.80	1.00	1.02	1.06	.99	.88	.81	.99	.91	.96	.85	.96	.82	....	.84	.97	.97	.80	.94	.86	.79
25-25.9	1.03	.95	.82	1.03	1.05	1.11	1.03	.93	.83	1.02	.95	....	.89	.99	.86	....	.88	1.01	1.01	.83	.98	.90	.83
26-26.9	1.06	1.00	.85	1.07	1.09	1.16	1.06	.98	.86	1.05	.98	....	.92	1.03	.90	....	.91	1.06	1.06	.86	1.02	....	....
27-27.9	1.10	1.05	.88	1.11	1.12	....	1.10	1.03	.88	....	1.02	....	.96	1.06	.95	....	.95	1.10	1.10	.88	1.06	....	....
28-28.9	1.14	1.10	.90	1.14	1.15	....	1.14	1.07	.90	....	1.06	....	.99	1.10	.99	....	.99	1.15	1.15	.91	1.10	....	....
29-29.9	1.17	1.15	.93	1.18	1.18		1.17	1.12	.93	....	1.09	....	1.03	1.14	1.03	....	1.02	1.20	1.20	.94	1.14	....	....
30-30.9	1.21	1.19	.95	1.22	1.21		1.21	1.17	.95	....	....	....	1.07	1.17	1.08	....	1.06	1.25	1.25	.97	1.18	....	....
31-31.9				....	1.24		1.24	1.22	.97	....	....	....	1.11	1.21	1.12	....	1.09	1.29	1.29	.99			
32-32.9	*Elwood Terrace			....	1.27		1.27	1.27	1.00	....	....	....	1.14	1.25	1.16	....	1.13	1.34	1.34	1.02	Kettleman Hills		
33-33.9	....	1.28	....	....	....		....	1.32	....	....	....	....	1.18	1.28	1.20	....	1.17	1.38	1.38	1.04	....	1.19	....
34-34.9	....	1.32	....	....	....		....	1.37	....	....	....	....	1.22	1.32	1.25	....	1.20	....	....	....	....	1.23	....
35-35.9	....	1.35	....	....	....		....	1.42	....	....	....	....	1.25	....	1.29	....	....	....	....	....	....	1.27	....
36-36.9	....	1.39	....	....	....		....	1.46	....	....	....	....	1.29	....	1.33	....	....	....	....	....	....	1.31	....
37-37.9	....	1.43	....	....	....		....	1.51	....	....	....	....	1.32	....	1.37	....	....	....	....	....	....	1.35	....
38-38.9	....	....	....	....	....		....	1.56	....	....	....	....	1.36	....	1.42	....	....	....	....	....	....	1.39	....
39-39.9	....	....	....	....	....		....	1.61	....	....	....	....	1.40	....	....	....	....	....	....	....	....	1.43	....
40-40.9	....	....	....	....	....		....	1.66	....	....	....	....	1.43	....	....	....	....	....	....	....	....	....	....

F.O.B. Standard Pipe Line

*F. o. b. ship.

‡Also McKittrick, Kern River, Kern Front and Round Mountain $0.70 thru 19.9 gravity; no higher gravity quoted. **Except Lakeview Area.

TRANSACTIONS IN OIL STOCKS ON NEW YORK STOCK EXCHANGE

1936 High	1936 Low	1937 High	1937 Low	Listed Shares	Par Value	Company	Current Dividend	Last Div. Paid	Transactions Week Ended April 24, 1937 Sales Shares	High	Low	Last	Week's Change
125½	75	114⅞	98¼	788,675	N.P.	Amerada Corp.	50cQ	Apr. 30, 37	2,900	107½	99	99⅜	— 6
35⅛	26⅝	37	30⅛	2,664,901	$25	Atlantic Refining Co.	25c	Mar. 15, 37	13,600	33⅜	32⅛	32⅛	— 1⅜
118½	109	116½	111	148,000	$100	do pfd. A	$1.00	Feb. 1, 37	400	112	111¼	112	0
28⅜	13¼	43⅜	35⅞	390,223	$10	Barber Co., Inc.	50c	Dec. 20, 36	5,500	39¼	37	37¼	— ¼
28¼	14⅛	35¼	26⅛	2,247,974	5	Barnsdall Corp.	25c	Feb. 1, 37	15,100	32⅞	30⅜	30⅜	— 1¼
30	8¼	40	26	1,444,970	N.P.	Colonial Beacon Oil Co.	....	.....	10	*40	40	40	— 2
17¼	11½	17¾	15⅞	13,983,287	N.P.	Consolidated Oil Corp.	20c	Feb. 15, 36	65,200	17¼	16⅜	16½	— ¼
106⅛	101	105⅞	104¾	132,771	N.P.	do pfd.	$1.25	Mar. 1, 37					
44⅞	28⅛	47⅜	40½	4,682,662	$5	Continental Oil Co.	25c	Mar. 29, 37	20,900	*47⅜	44⅛	44½	— 2⅜
13⅞	6⅜	17⅝	12½	1,098,618	25	Houston Oil Co. v.t.c.	....	.....	28,100	15⅜	14⅛	14½	+ ¼
15⅛	4⅛	22¼	12¾	1,207,132	10	Indian Refining Co.	....	.....	700	17	15¾	15¾	— 1¼
51½	13	35¾	28	40,000	100	Louisiana Oil Refining Corp. pfd.	....	.....					
6¾	2¼	6¾	4⅛	305,000	$1	Maracaibo Oil Exploration Co.	....	.....	800	4¾	4½	4½	— ½
30⅞	17¼	35⅝	29¼	1,855,912	$10	Mid-Continent Pet. Corp.	75c	Dec. 1, 36	9,800	33½	31⅝	31¾	— ¼
29⅞	16⅜	33¾	26⅞	1,399,345	N.P.	Mission Corp.	45c	Dec. 18, 36	3,800	32¾	29⅛	29⅛	— 2½
18	12⅛	22⅞	17⅛	6,563,377	N.P.	Ohio Oil Co.	35c	Dec. 15, 36	37,800	22½	20¾	20⅞	— ⅞
23¼	11⅜	29¾	22¼	1,000,000	N.P.	Pacific Western Oil Corp.	65c	Dec 18, 36	5,200	27¾	25¼	25¼	— 2¼
20⅝	12¼	17⅛	11¾	4,699,885	$5	Pan Amer. Pet. & Transp. Co.	60c	Dec. 21, 36					
4¼	1⅜	4½	2¾	199,370	N.P.	Panhandle Prod. & Ref'g. Co.	....	.....	8,500	3⅞	3¼	3¼	— ⅛
74½	18½	99¼	60	17,994	$100	do pfd.	....	.....	1,620	102½	93	94¾	— 1¼
18¼	12⅜	21⅝	17¼	2,153,444	5	Petroleum Corp. of America	40c	Dec. 24, 36	2,800	20⅛	18⅞	19	— ½
52⅜	38⅛	59¼	49½	4,152,836	N.P.	Phillips Petroleum Co.	50c	Mar. 1, 37	22,500	58¾	55½	55⅞	— 1½
18¼	8	20¾	16⅜	150,000	100	Pierce Oil Corp. 8% cum. pfd.	....	.....	2,600	18¾	17½	17½	— 1½
3⅜	1¼	4⅛	3⅛	2,500,000	N.P.	Pierce Petroleum Corp.	....	.....					
27¾	11⅞	29⅞	24¼	1,050,000	$5	Plymouth Oil	25c	Mar. 31, 37	20,300	**29⅞	27⅝	28⅛	0
24⅞	16	24⅜	19½	3,038,370	N.P.	Pure Oil Co.	.....	.....	44,100	22¼	20½	21	— ⅛
118	91¼	107	99	167,640	$100	do 6% pfd.	$1.50	Apr. 1, 37	1,100	102⅞	102	102	0
133¾	103	112¾	108	130,000	100	do 8% pfd.	$2.00	Apr. 1, 37	520	110½	109	110½	0
18¾	17	18⅞	16	927,305	10	Quaker State Oil & Refg.	20c	Mar. 15, 37	2,100	17¾	16¼	17⅛	+ ⅛
44	30½	54⅛	41	1,244,383	N.P.	Seaboard Oil of Del.	25c	Dec. 15, 36	13,900	57	46⅜	47	— 2¼
28¼	14¾	34¾	26⅞	13,070,625	N.P.	Shell Union Oil Corp.	25c	Dec. 15, 36	5,200	31½	30⅜	30⅜	— 1⅛
127½	102	105¾	102	400,000	$100	do pfd. w.w.	$1.37½	Apr. 1, 37	3,100	104¼	103½	103½	— ¼
6¾	3½	4¼	3½	461,000	10	Simms Petroleum Co.	**$1.00	Jan. 9, 37	2,700	*4¼	3¾	3¾	+ ⅛
47⅝	19½	60⅝	42	1,008,549	15	Skelly Oil Co.	.....	.....	8,100	*60⅝	56	56⅛	— 1⅜
132	97⅝	102¼	99	120,000	100	do pfd.	$1.50	May 1, 37	900	100⅜	100	100	— ½
17½	12½	20¼	16¼	31,151,075	15	Socony Vacuum Oil Co.	25c	Mar. 15, 37	148,200	*20¼	19⅛	19⅜	— ⅛
47⅝	35	50	43¼	13,014,754	N.P.	S. O. California	25c	Mar. 15, 37	17,100	47½	44½	45	— 1⅞
48½	32¾	50	44⅜	15,215,677	$25	S. O. Indiana	25c	Mar. 15, 37	10,400	47¼	45⅛	45⅜	— 1½
31	25	32	30¾	145,441	10	S. O. Kansas	$1.00	Dec. 26, 36	200	30¾	†30¾	30¾	— ¼
70⅜	51⅛	76	66⅛	26,200,825	25	S. O. New Jersey	$1.25	Dec. 15, 36	35,300	70⅜	†66⅛	66½	2⅜
91	70	77½	68	2,019,093	N.P.	Sun Oil Co.	25cQE	Mar. 15, 37	700	71¾	69½	69½	2
125	118	125	120	100,000	$100	do pfd.	$1.50Q	Mar. 1, 37	200	124¼	122¼	122¼	+ ¼
† 6¾	3	7¾	4⅝	966,979	$1	Superior Oil Corp. (Del.)	....	.....	16,800	6½	5⅞	6	— ⅜
55¼	28⅞	65⅛	50⅜	9,851,236	$25	The Texas Corp.	50c	Apr. 1, 37	83,200	*65⅛	60½	61⅛	— 1⅜
15¼	7½	16⅜	13⅛	930,570	10	Texas Pacific Coal & Oil Co.	10c	Mar. 1, 37	14,300	15⅜	14⅝	14⅝	— ¾
21¾	19	21⅝	18½	5,873,000	$10	Tide Water Associated Oil Co.	15c	Mar. 1, 37	25,900	19½	18½	18⅝	— ⅝
106½	100⅝	108	105⅛	695,503	$100	do pfd. C. T. V.	$1.12½Q	Apr. 1, 37					
28½	20¾	28¼	24⅛	4,386,070	$25	Union Oil of California	25cQ	Feb. 10, 37	10,800	26⅜	25	25	— 1⅜
31⅝	22⅝	31½	26⅜	1,200,000	N.P.	Union Tank Car Co.	40cQ	Mar. 1, 37	1,200	28	27½	27½	— 1
2⅞	½	1⅝	⅞	759,538	N.P.	Warner Quinlan Co.	....	.....	2,900	⅞	⅞	⅞	0
5¼	2¾	6¼	4½	431,443	$5	H. F. Wilcox Oil & Gas Co.	....	.....	2,600	5½	5	5⅛	— ⅜

*New high. †New low. Ex-div. **Dividends of liquidation.
E also 6% stock dividend.

STANDARD OIL STOCKS ON NEW YORK CURB MARKET

1936 High	1936 Low	1937 High	1937 Low	Listed Shares	Par Value	Company	Current Dividend	Last Div. Paid	Transactions Week Ended April 24, 1937 Sales Shares	High	Low	Last	Week's Change
18	12¼	19	15¼	36,000	$25	Borne Scrymser Co.	75c	Apr. 15, 37	200	17½	17⅜	17⅜	+ ⅛
50	39¾	51½	46	200,000	50	Buckeye Pipe Line Co.	$1.00	Mar. 15, 37	100	50¾	50¼	50¼	+ ¼
124¾	105	122¼	110¼	120,000	25	Chesebrough Mfg. Co.	$1.00Q	Mar. 29, 37	200	123	120	120	— 2⅜
39	19⅜	38	28½	6,974,356	$5	Creole Petroleum Co.	25c	Dec. 15, 36	16,100	34⅞	32¾	33½	+ ½
47½	38½	47½	37	50,000	$50	Eureka Pipe Line Co.	$1Q	Feb. 1, 37					
80	57	87	77½	8,985,662	N.P.	Humble Oil & Refg. Co.	37½c	Apr. 1, 37	1,300	83¼	81½	82	+ ½
24½	19¾	24¼	21	26,965,078	N.P.	Imperial Oil Ltd.	°25cS	Dec. 1, 36	7,300	22⅛	21⅜	22	0
24⅝	19⅞	24	21	.....	N.P.	do registered	25cS	Dec. 1, 36	200	22	21⅞	21⅞	— ⅛
9¾	5½	14⅞	7¾	300,000	$10	Indiana Pipe Line Co.	20c	Dec. 17, 36	300	14	13⅛	13⅛	+ ⅛
39⅝	32⅝	39½	33¾	14,324,088	N.P.	International Pet. Co.	°75cS	June 1, 36	1,500	36¼	35½	35½	— ½
38½	33⅜	38	35	.....	.....	do registered	....	.....					
15¾	9¼	11⅞	10	509,000	$12.50	National Transit Co.	35c	Dec. 15, 36	1,100	10⅜	10¼	10½	+ ⅛
6¼	4¼	5⅜	4¾	100,000	5	New York Transit Co.	15c S.A.	Oct. 15, 36					
9¾	4⅞	11	7½	120,000	10	Northern Pipe Line Co.	35c	Jan. 2, 37	1,900	11½	*11	11¼	+ ½
110⅜	104½	111½	108½	562,122	100	Ohio Oil Co. pfd.	$1.50Q	Dec. 15, 36	100	109¼	108½	108½	— ½
8¼	5½	8¾	5⅞	394,000	$1	Penn Mex Fuel Co.	50c	Dec. 21, 36	100	5¾	5¾	5¾	0
44	32½	48	42	1,142,671	10	South Penn Oil Co.	37½cQ	Mar. 31, 37	1,400	43½	42¾	43	— ½
7⅞	3¼	7¼	5	100,000	25	Southern Pipe Line Co.	20c	Mar. 1, 37	100	6	6	6	+ ⅛
60	44	42	31	35,000	10	South West Pa. Pipe Lines	50c	Apr. 1, 37	100	31	31	31	— 1½
23⅜	17⅛	20¾	19⅛	2,604,801	50	S. O. Kentucky	25c	Mar. 15, 37	2,700	19⅞	19½	19⅝	— ⅜
14⅝	11	13¾	11½	182,803	25	S. O. Nebraska	25c	Mar. 29, 37	300	13⅛	13	13	0
40	21¾	45	33¼	753,740	25	S. O. Ohio	25c	Mar. 15, 37	1,400	41½	39⅞	39⅞	— 1⅜
107½	97	105¾	104	120,000	100	do 5% pfd.	$1.50Q	Apr. 15, 37	25	104½	104½	104½	½
13⅝	5⅛	17	12¾	34,158	15	Swan Finch Oil Corp.	....	.....	300	13	12⅜	12⅜	— ⅜

*New high. †New low. °Imperial Oil Spec. 37½c Dec. 1, 36. International Pet. Spec. 50c June 1, 36.
x Ex dividend.

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Oil and Royalty Stocks on New York Curb

1936 High	1936 Low	1937 High	1937 Low	Par Value	Company	Transactions Week Ended April 24, 1937 Sales Shares	High	Low	Last	Week's Change
1 7/8	1/4	2 3/4	1 1/4	N.P.	American Maracaibo	6,200	2	1 3/4	1 3/4	— 1/8
8 1/2	3 1/4	12 7/8	7 3/4	N.P.	Arkansas Nat. Gas	2,800	9 1/2	8 1/8	8 1/8	— 1
8 1/2	3 1/4	13 1/4	7 7/8	N.P.	do A	30,300	9 5/8	8 3/8	8 1/2	— 3/4
10 7/8	7 1/2	10 3/4	8 5/8	$10	do pfd	2,200	9 1/4	8 7/8	8 7/8	— 1/4
7 1/4	6 1/2	8 1/4	6 1/2	$1	Ashland Oil & Refg	2,100	7 1/8	6 3/4	6 3/4	— 3/8
27 1/4	16 1/2	26 1/4	24 1/2	N.P.	British Amer. Oil coup.	.....	.....	.....	.....	.....
4 7/8	1 7/8	2 3/4	1 7/8	$1/4	Carib Syndicate	14,600	2 1/2	2 1/8	2 1/4	0
7 3/8	3	5 3/8	3 3/4	N.P.	Cities Service	30,500	4	†3 3/4	3 7/8	0
66	41 1/2	60	46 1/2	N.P.	do pfd	9,000	53	51	52	+ 1
6 1/2	3 3/4	5 7/8	4 1/2	N.P.	do pfd. B	400	5	4 3/4	5	+ 3/8
63	40	58	42	N.P.	do pfd. BB	100	50	47 1/2	50	+ 3 1/2
4	5/8	.....	.....	N.P.	Colon Oil Corp.	.....	.....	.....	.....	.....
10 1/2	3/4	10 7/8	8 1/8	$1	Columbia Oil & Gas	8,100	9	8 3/4	8 3/4	— 1/2
3 1/2	2	3 1/8	2 3/4	$10	Consolidated Royalty	500	2 5/8	2 1/2	2 1/2	— 1/4
4 1/2	1 1/2	4 3/8	2 1/8	$1	Cosden Oil	2,200	2 3/8	2 1/8	2 1/8	— 1/4
38 1/4	6 1/2	39 7/8	28 1/4	$100	do pfd	400	33 3/8	32 1/8	32 1/8	— 1 7/8
2 3/4	1 3/4	2 5/8	2	N.P.	Crown Central Pet.	9,500	2 1/2	2	2 1/4	+ 1/4
2 1/2	3/4	2 5/8	1 1/4	N.P.	Crystal Oil Refg.	.....	.....	.....	.....	.....
18 1/2	9	18 1/2	15 1/4	$5	Darby Petroleum	1,300	16 3/4	†15 1/4	15 1/4	— 1 7/8
6 3/4	1 7/8	8 1/4	5 1/4	N.P.	Derby Oil & Refg.	14,300	8 1/8	7 1/4	7 1/2	— 1/4
81	25 1/2	88	76	N.P.	do pfd	400	85 1/4	79	79	— 6 1/2
59	54	63 1/2	55 3/4	$25	Gulf Oil Corp.	7,200	59 7/8	56 1/2	56 1/2	— 3
6 1/4	2 5/8	4 1/8	3 1/2	N.P.	Indian Ter. Illg. Oil A	200	3 3/4	3 3/4	3 3/4	— 1/8
6 1/2	3	4 1/8	3 5/8	N.P.	do B	400	3 3/4	3 5/8	3 5/8	— 1/8
5 3/4	2 5/8	8 1/4	5 1/4	$1	Kirby Petroleum	1,400	6 7/8	6 1/2	6 5/8	— 1/4
2	1/2	2 1/2	1/4	$25	Leonard Oil Dev.	8,900	1 1/2	1 1/4	1 1/4	— 1/4
17 3/4	7 3/8	26 3/4	16 1/8	N.P.	Lion Oil Refg.	10,400	24 3/8	22 7/8	22 7/8	— 1 1/8
14 1/4	9 7/8	14 1/4	10 5/8	N.P.	Lone Star Gas	4,600	11 3/8	10 3/4	11 3/8	+ 3/8
22 1/4	12	33 1/2	25	N.P.	Margay Oil Co.	900	30 1/4	28	28	— 1
4 1/8	1 1/8	4 1/4	2 1/4	N.P.	Mexico-Ohio Oil	600	2 1/2	†2 1/4	2 1/4	— 1/4
4 3/4	1 7/8	11 1/8	2 3/4	$1	Michigan Gas & Oil	1,900	10	9 1/2	10	0
6 5/8	2 3/4	7	4 3/4	N.P.	Mid. States Pet. A vtc.	1,300	5 7/8	5 1/4	5 3/8	— 1/4
2 5/8	1/2	2	1 1/8	N.P.	do B vtc.	2,400	1 3/8	1 1/4	1 1/4	0
8 3/4	5	7 7/8	6	$10	Mountain Producers	3,200	6 7/8	6 1/2	6 1/2	— 1/4
23	17 3/4	19 1/2	15 5/8	N.P.	National Fuel Gas	16,500	17 1/4	16 5/8	16 5/8	+ 3/8
4 3/8	2 7/8	6 1/8	4 3/4	$5	New Bradford Oil	100	5 3/8	5 3/8	5 3/8	— 3/4
8 1/8	3 3/8	6 1/8	5	$5	North Central Texas	100	5 1/2	5 1/2	5 1/2	+ 1/4
1/2	1/8	3/4	1/8	$1	North European	3,800	3/8	1/4	1/4	0
17 5/8	12	14 1/2	13 1/2	$5	Oil Stocks Ltd. A	400	13 1/2	13 1/2	13 1/2	0
10 1/8	3 1/4	9 5/8	5 1/2	$1	Pantepec of Venezuela	16,700	6 7/8	6 1/4	6 3/8	+ 1/8
1/8	1/8	1/8	1/8	25c	Producers Corp.	600	1/8	3/8	1/8	0
20	3	17 1/2	10	N.P.	Red Bank Oil	1,700	15	13 3/4	14 1/8	— 3/4
1 1/2	1/2	1 5/8	3/4	N.P.	Reiter-Foster Oil	13,400	*1 3/4	1 3/8	1 3/8	— 1/8
2 3/4	1/4	.....	.....	$25	Richfield Oil pfd.	.....	.....	.....	.....	.....
19 1/4	4 1/2	13 3/4	7 3/4	$1	Root Petroleum	3,300	8 3/8	†7 3/4	7 3/4	— 1/2
23	14 1/2	18	15	$20	do conv. pr. pfd.	.....	.....	.....	.....	.....
4 3/8	1 7/8	6 1/2	4	N.P.	Ryan Consolidated	12,200	6 1/4	4 5/8	5 7/8	+ 7/8
11 1/4	6 1/4	11 1/4	8 3/4	N.P.	Southland Royalty	9,600	11 1/8	10	10	— 1 1/8
5	2 3/8	4 7/8	4	$1	Sunray Oil	7,300	4 3/4	4 3/8	4 1/2	— 1/4
49	45	50	45 1/4	.....	do pfd	200	47 1/2	47	47	— 1
9 3/4	5 3/8	7 1/8	6 1/8	N.P.	Texon Oil & Land	500	6 3/8	6 1/4	6 3/8	+ 1/8
8	2 3/4	9 1/4	6	.....	Venezuela Mex.	700	7 1/4	6 3/4	7 1/8	+ 1/2
3	1 1/4	3 3/4	1 1/4	$1	Venezuela Petroleum	3,700	2 1/8	2	2	0
11	5 3/8	12 1/2	8 3/4	$1	Woodley Petroleum	1,200	9 7/8	9 5/8	9 3/4	— 1/8

*New high. †New low.

Oil Dividends

Dividends Waiting Payment

Company	Amount	Record	Payable
Buckeye Pipe Line	$1.00	May 28	June 15
Cons. Oil pfd. q.	$1.25	May 15	June 1
North Cent. Texas Oil	15c	June 10	July 3
Northern Pipe Line	40c	May 14	June 1
Quaker State Oil Refg.	25c	May 29	June 15
Seaboard Oil of Del. q.	25c	June 1	June 15
Sun Oil q.	25c	May 25	June 15
Sun Oil pfd. q.	$1.50	May 10	June 1
Tide Water Assoc. Oil	20c	May 10	June 1

New York Bonds

Week Ended April 24

	High	Low	Last	Change
Atlantic Refg. deb. 5s	100 11/16	100 8/16	100 8/16	— 7/16
Houston Oil 5 1/2s '40	102	101 3/4	101 3/4	— 1/4
Pure Oil 4 1/4s '50 w.w.	124 1/2	120 1/2	121	—1 1/2
Pure Oil 4 1/4s '50 x.w.	104	103 5/8	103 5/8	— 1/8
Richfield Oil of Calif. 6s	55 1/4	54 1/2	54 1/2	—1 1/2
do 6s ctfs	54 1/2	54 1/4	54 1/2	+ 1/2
Shell Union Oil 3 1/2s '51	97 7/8	97	97 3/8	— 1/2
Skelly Oil 4s	99 1/8	98 3/4	98 3/4	— 1/4
Socony-Vacuum 3 1/2s '50	104	103	103	— 3/4
S. O. N. J. 5 1/2s	96 1/16	95 3/4	96	+ 1/8
Union Oil of Calif. 3 1/2s '52	111 1/2	111	111	— 3/4
do 6s A	116 5/8	116 1/4	116 3/8	— 1/4
Warner-Quinlan 6s '39	50	47 1/4	47 1/4	—2 3/4

Pittsburgh Stock Exc.

Transactions Week Ended April 23, 1937

	Sales	High	Low	Last	Change Over Week
Ark. Nat. Gas	25	9	9	9	+ 1/4
do pfd	15	8 7/8	8 7/8	8 7/8	— 1/8
†Cities Serv.	279	4 1/4	3 5/8	3 5/8	— 1/8
xCol. Gas & Elec.	401	14 3/4	13 7/8	14 3/8	— 3/8
†Col. Oil & Gaso.	29	8 7/8	8 1/4	8 1/4	— 3/4
Devonian Oil	100	22 1/2	22 1/2	22 1/2	— 1/2
Lone Star Gas	4,340	11 1/4	10 7/8	11 1/8	+ 1/8
†x do 6 1/2 p.c. pfd.	50	110 1/2	110 1/2	110 1/2	—2 1/2
Mountain Fuel Supply	3,498	11 1/8	10 1/4	10 1/4	— 3/4
Phoenix Oil	8,700	.10	.08	.08	—.02
do pfd	1,000	.10	.10	.10	0
Plymouth Oil	169	29 1/2	28 1/4	29	+1
Shamrock Oil & Gas	1,085	7	6 3/4	6 7/8	— 1/8
do pfd	45	13 1/4	13 1/4	13 1/4	0
†Standard Oil of N. J.	279	70	68 5/8	68 5/8	— 1/2

†Unlisted. xEx dividend.

New York Curb Bonds

Week Ending April 24

	High	Low	Last	Change
Cities Serv. 5s '66	73	72 3/4	72 3/4	— 1/2
Cities Serv. 5s '50	73 1/16	71	71	—1 7/8
Cities Serv. G. 5 1/2s '42	101 1/4	100	100 1/16	— 7/8
Empire O & R 5 1/2s '42	91	89 1/2	90 1/8	+ 3/8
Valvoline Oil 7s '37	100	100	100	0

Cleveland Stock Exc.

Transactions Week Ended April 24, 1937

	Sales	High	Low	Last	Change Over Week
Canfield Oil	.....	.....	.....	.....	.....
do pfd	.....	.....	.....	.....	.....
Nat'l Refining	455	10 1/2	10	10 1/4	+ 1/4
do pfd	.....	.....	.....	.....	.....

ADVERTISING PAGES REMOVED

An 80,000-gallon bulk plant, and the service station and the home in the picture above have been managed successfully by Mrs. Flossie Hafer since her husband's death

Woman Marketer in Michigan . . .

Avoids 'Competitor Complex' and Gives Service to Achieve Success as Bulk Plant and Station Operator

"OF COURSE, Mrs. Hafer, you won't try to carry on your husband's business. It isn't a woman's job. My advice would be that you sell before it is allowed to run down."

The real estate man chewed his black cigar and lolled in the chair across Mrs. Flossie Hafer's desk in her Mt. Pleasant (Mich.) service station. He had a buyer for the Hafer Oil Co., and already thinking of his commission as if it were a reality, he was assuming that she would be easily persuaded.

Mrs. Hafer had been perplexed since her husband's death. She had three children to raise and educate and thought on future financial problems had occupied much of her time. The presumptive attitude of the real estate man crystallized a decision.

"What makes you think I can't run this business?" she retorted. "I can run it and I will run it." Thus she became a business executive, and a good one, as subsequent results prove. It has been nearly five years she has carried on the bulk distributing business established by Roy Hafer, her husband, and, in spite of depression, each of those years has shown a substantial increase in gallonage over that of the preceding year.

In 1922, Mr. Hafer set up a bulk distributing plant for gasoline and oils. Later he built a modern filling station and, adjoining it, a home for his family.

Interested primarily in her duties as a wife and mother, Mrs. Hafer knew no more than the average wife knows of her husband's business, but after his death Mrs. Hafer continued the policies Mr. Hafer had said were responsible for his trade.

Mrs. Flossie Hafer

No 'Woman's Viewpoint'

When she was asked if her woman's viewpoint had caused her to take up and apply unusual or revolutionary policies, she replied, "I think not. There are two essential elements in this business upon which may base either success or failure. They are Service—with a capital S—and the personal or human element. With filling stations on nearly every corner, the progressive operator must give the public good and substantial reasons for preferring to drive an extra short distance to *his* station.

"I recall one of my husband's remarks. 'See that grouchy individual?' he said. 'Watch me send him away with a smile.' And he'd do it. Pleasant and thorough service has become a fetish with us. I've drilled the idea into every employe. My youngest son—he's fourteen—can handle a customer as quickly, as thoroughly and as smilingly as any man who works for me.

"I also find adroit ways to instill the service idea into the independent operators of the stations I supply. Every one of them seems to be right on his toes when a customer's car drives up."

"As a woman, do you have any unusual ideas for pleasing your feminine customers?"

"No, I know of none. The ten point

service we give to all customers takes in everything we might do for any helpless woman. We are particular about keeping our rest rooms clean and warm and about providing the towels and accessories that make this service fit the public need. I think we've also developed a balanced tolerance toward that small part of the general public that abuses the conveniences and privileges we offer. It's all a part of the business and we never penalize good people by getting into a hostile attitude toward those who irritate us by making our work harder.

Too Much Service

"There seems to be a fine point of balance between giving too much service attention and giving too little. I've noticed some customers resent the slight delays caused by unnecessary windshield wiping, for instance. Our boys are told to do their work unobtrusively and quickly and never to insist upon those little extra touches that irritate some people."

She was asked if she had experienced any special difficulties as a woman in dealing with business men.

"No," she replied. "Men are a pretty good sort when you meet them on the right ground. My office is in my home and it gives me a chance to sit down and 'visit out' a tough problem when one comes along. Perhaps I'm sensitive about being a woman in a man's world. That has caused me to take special pains to avoid making a feminine appeal to the men with whom I deal. I keep the cards on the table, let everyone know that I expect a fair deal and that I'll give one. So far, it has worked perfectly."

"What do your competitors think of a woman's success in the oil business?" she was asked.

"To be perfectly truthful," she replied, "I don't know. I've never allowed myself to get a 'competitor complex.' I've always assumed that my competitors were ethical gentlemen and my experience with them has proved that they are. I knew a person one time whose vivid imagination had him believing that his competitors were plotting against him, that they were determined to ruin him. His fixation on that delusion destroyed his usefulness. My competitors and I are friendly and I'm sure they do not resent the fact that I'm getting along."

New Equipment

AND THE MANUFACTURERS

Waverly Handbook

The ninth edition of the Waverly Handbook is being published, the Waverly Oil Works Co. announced, and will be available about April 15. The new edition, containing over 900 pages, will include articles on various processes of refining, petroleum standards, and lubrication problems. In addition to reference tables, the book will contain a business law section and over 100 pages of Waverly formulas.

* * *

Truck Booklet

"Stirring Examples of Four Wheel Drive Trucks in Action" is the title of a 12-page booklet describing activities of the Halliburton Oil Well Cementing Co., operators of a fleet of over 200 four wheel drive trucks. It has just been published by Four Wheel Drive Auto Co., Clintonville, Wis., and is a reprint of a paper presented by C. P. Parsons, vice president of Halliburton, before the Society of Automotive Engineers at Dallas last October.

* * *

Headlight Tester

A photo-electric cell is the basis for a new headlight tester that Bear Mfg. Co., Rock Island, Ill., has put on the market. When the cone-shaped tester is fitted over a light, it indicates whether the light is good, medium or poor.

* * *

Frank Carney Joins Erie Meter

The recent appointment of Frank E. Carney, as Eastern Division Manager, for New England and the East sales area of Erie Meter Systems, Inc., puts an old man in a new spot. Mr. Carney is well known in the oil industry by the major and independent operators, having started originally with the Guarantee Liquid Measure Company, manufacturers of the Fry visible pump. Later Mr. Carney was identified with the Sharpsville Boiler Works Company, and since 1933 with the Lubrication Corporation of Chicago, Illinois, selling specialized equipment, such as Cartridge Lubrication Systems and Hypoid Dispensing Equipment, commonly known as "gear oil dispensing equipment."

Carney's office is at 11 East 42nd St., New York City. He succeeds Harry S. Pell, who was recently appointed manager of sales for the Erie organization.

* * *

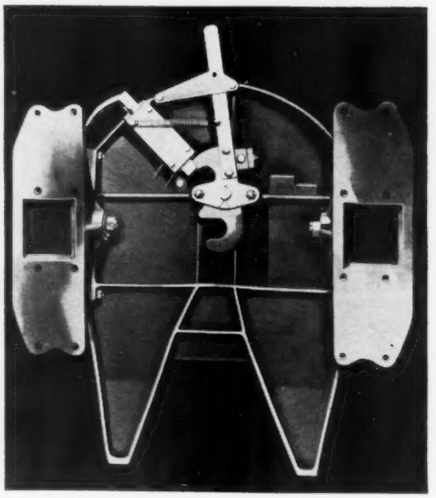
Shand and Jurs Co. of Berkeley, Calif., announced appointment of R. F. Ley as manager of its eastern division, with headquarters in New York. Robert Blake is assistant manager. A branch office has been opened at Houston also with J. Z. Hertzler in charge.

* * *

Lubrication Equipment

Modern, colorful, and attractively displayed lubrication equipment builds confidence, advertises, and makes new customers, points out the Cincinnati Ball Crank Co., Cincinnati, in announcing its new Balcrank lubrication equipment. The

company explains that its equipment gives the service station every opportunity to make its lubrication department a profitable show place. The new 1937 Balcrank Catalog is ready for distribution, giving detailed data and illustrations on the complete line.



New Fifth Wheel

A new 36-inch fifth wheel, with specially moulded rubber mounting and only four moving parts, has just been announced by the Fruehauf Trailer Co., Detroit. The new fifth wheel not only offers Fruehauf safety, but incorporates several features including non-sway design and a ribbed construction which gives ample strength without excessive weight, according to the company announcement.

* * *

The Trailer Co. of America of Cincinnati, announces the appointment of Joseph Kuttler as manager of its new factory to be established at Oakland, Calif. Kuttler has had an important part in the pioneer development of the semi-trailer.

* * *

Oil Filter Display

A new three-color fade-proof, metal display board designed for the promotion of oil filter sales for dealers is being introduced to the trade by AC Spark Plug Co. through its wholesalers.

The display board with four "W" type AC cartridges (which fit 98 per cent of all requirements) is being marketed as a special introductory deal.

According to the company's early nation-wide reports from jobbers, the new display board is proving effective in further increasing dealer lubrication and oil filter business.

ADVERTISING PAGES REMOVED

Care, Maintenance and Abandonment Of Underground Station Tanks

This paper was presented at the Greater New York Safety Conference, held at the Astor Hotel, New York City, April 13, 14 and 15.

By **J. M. KLIPFEL***

IN THIS paper the author gives many pertinent facts about one of the least considered pieces of service station equipment—the underground tank.

He discusses the care of the tanks, how they should be coated, and what precautions should be taken in installing and venting them. Considerable space is given to the subject of tank maintenance and the various factors influencing this up-keep, such as grade surfaces, vents, and electricity and electrolysis. The procedure to follow when abandoning underground tanks, either temporarily or permanently, is outlined in detail.

This paper deserves the close study of every oil man who owns service stations or who supplies them with products, for it contains many suggestions, which, if followed, may aid in preventing personal injury and property damage.

WE ARE all aware of the fact that it is comparatively easy to detect hazardous equipment that is visible and aboveground, whereas any equipment that is buried underground is difficult to visualize and too often forgotten.

Care of Tanks

Under the heading "Care of Underground Storage Tanks," the following items should be given consideration:

1. Selection of metal
2. Proper design
3. Shop tests
4. Protective coatings
5. Installation
6. Venting

ITEM NO. 1—Selection of Metals: In the selection of materials, it is advisable in every case to consider the recommendations and rules of the Board of Underwriters, the National Safety Council, and the American Petroleum Institute, all of which have laid down rules based on years of experience in actual practice and service. In no case should the thickness of metal be shaded below the gauges recommended, as these have been selected not only with a view of establishing reasonable safety, but also from the point of economy.

ITEM No. 2—Proper Design: By proper design, in the case of riveted tanks, is meant the size and spacing of rivets as well as the lap of metal at the joints and the caulking thereof. On welded tanks it is important to prepare the edges of the metal and secure complete penetration and fusion for making strong welds. Still more important is the need of using experienced workmen on welding, as the slightest weakness in any portion of the work, nullifies the whole job. In this respect, inferior welding is comparable to a length of chain which contains one weak link.

ITEM NO. 3—Shop Tests: Shop tests should be definitely specified and should in no case be less than 5 lbs. per square inch, which is equivalent to a static head of slightly over 15 feet of petroleum product.

In some cases, municipalities have been known to require tests higher than this, which is considered unreasonable. However, tanks should be given a hydraulic test of 5 lbs. per square inch by the contractor after placing the tank in position. The purpose of this test is to determine whether the tank has suffered any damage through transportation or handling.

ITEM No. 4—Protective Coatings: Regarding the matter of protective coatings under ordinary conditions, that is to say, when tanks are placed into ground known to be quite neutral and non-corrosive, a thorough coat of asphaltum or other suitable rust-resisting material is sufficient. However, here again the weak link idea must be considered, for unless the protective coating covers the surfaces of the tank in its entirety, such portions from which the coating has been removed through scratches or scraping during transportation and handling, or while being placed underground, will rust and corrode as if the tank had not been coated at all. You will note that we have been careful to avoid the word "paint" as linseed oil paints are hardly worth the expense of application.

Extraordinary care in the handling of tanks to prevent damage to protective coatings is well worth while, as very often protective coatings are condemned as unsuitable where, as a matter of fact, the protective painting was damaged by carelessness in placing tanks underground. Protective coatings for underground equipment is a vast subject and beyond the scope of this paper, as the type of coating to be used is dependent on the acidity of the soil, mineral content thereof, and the possibility of electrolysis to which the protective coating may be a contributing factor in itself. In general, it may be said that severe corrosive soil conditions are relatively rare and usually discovered through experience in particular localities with underground water supply pipes, gas lines, etc.

In any event, the presence of water is absolutely necessary if corrosion is to take place, since the corrosive character of soil depends primarily upon the presence of certain dissolved materials in the soil water. These originate both from the air and the ground. The corrosive action on metal is influenced by the amount of ground water present and is, therefore, reduced if the soil is readily drained. By the same token, the greatest corrosion occurs at the bottom of the tank.

ITEM NO. 5—Installation: In installing underground tanks, the rules of authorities should be followed as to the depth of burying tanks. The generally accepted rule of good practice is to place tanks underground so that the top of the tank is not less than 2 feet below grade. Where it is necessary for heavy vehicles to pass over the top of buried tanks, it is advisable to protect the tank from crushing with a concrete slab extending not less than 6 inches beyond the tank area, or by some other supporting medium.

While on the matter of eliminating the danger of damage to underground tanks by heavy vehicles, it might be well to transgress a bit from the subject, which was intended to cover underground gasoline storage tanks for service stations, and state that where extra large storage tanks, having a diameter of from 8 feet to 12 feet are placed underground, it is very often necessary to brace the heads and perimeter of the tank against crushing and buckling from earth load. This is very important where such large tanks are installed in low lying areas where the soil can become thoroughly saturated with water, and they should be anchored.

Another item that is important and often lost sight of, is a substantial and thorough workmanship job of pipe connections. Every care should be taken that full threads are made in order to prevent

* Engineering division, Socony-Vacuum Oil Co., Inc., New York City

the possibility of connections breaking off at the threaded portion of the pipe where the minimum cross-section of material exists, thereby permitting surface water to enter the tank and displace such flammable liquids as the tank may contain. Liquid forced from an underground tank by surface water displacement might be apt to find its way into basements of buildings, city sewers and conduits.

What might happen when gasoline finds its way into the basement of a building or city sewer needs no explanation and very little imagination. In installing underground tanks, intelligent supervision is necessary, not only to prevent straining of the tank shell when placing in the ground, but also in filling in the excavation. Large stones should never be dropped on the tank, as they could easily cause damage to riveted or welded joints. Carelessness at this time might cause a leak that would not be discovered for several months.

The fill around tanks should never contain cinders because of their corrosive effect on metal. Cinders and coal, as you probably all know, when wetted down produce a weak solution of sulphuric acid. Where underground tanks are placed in vaults or concrete enclosures, the sand fill between the concrete walls and tank should in all cases be sweet sand. Sand from the seashore should never be used because of the salt content which is detrimental and expedites corrosion. When land has been filled in with refuse and perhaps waste from chemical plants, especial care is indicated.

In the event that tanks located in basements might be considered underground tanks, it might be stated that the walling in or covering of such tanks is apt to do more harm than good, for the simple reason that rusting does occur, is invisible, and the coverings or coatings on walls are not liquid tight.

ITEM NO. 6—Venting: The venting of tanks is an important item in installing underground storage tanks. In every case, the venting recommendations of either the National Fire Protection Association, National Safety Council, or American Petroleum Institute, should be followed. The vent pipes should never extend more than 1 inch into the tank and should preferably be flush with the inside. They should not be less than the sizes recommended, nor is it advisable to connect several tanks to one vent pipe because of possible contamination and insufficient venting area, notwithstanding the general rule that where a battery of tanks is used to hold the same product, the vent pipe may be run to a main header.

Special care should be taken in terminating the vent pipe in a position where vapors are readily dissipated. Vent pipes should not be terminated below wide cornices on buildings and in close proximity of doors and windows, as accidents are apt to happen while service station attendants are lighting fires in stoves or other heating equipment, and by customers smoking in washrooms.

Where vents have been placed under cornices and near windows, the condition is probably due to the unqualified rule that vent pipes should extend 12 feet above the top of the fill pipe. When the 12-foot height is at a point under a cornice, in proximity of doors and windows, the vent pipes should be carried out beyond cornices and terminated at least 2 feet above the edge of the roof. The vent pipes should, of course, be fitted with a screened double outlet, the screen being 40 x 40 mesh of non-corrodible material. In no case should the screen be less than 30 x 30 mesh.

Maintenance of Tanks

Under the heading of "Maintenance of Underground Storage Tanks," the following items of procedure should be followed:

1. Inspection and maintenance of fill boxes
2. Maintenance of grade surfaces
3. Maintenance of vents
4. Static electricity and electrolysis

As underground tanks are invisible, any maintenance procedure that can be applied is of an indirect nature.

ITEM NO. 1—Inspection and Maintenance of Fill Boxes: Under this heading is meant the proper maintenance for tightness of tank connections and fill box covers, to prevent leakage of surface water into the tanks which would cause the petroleum product to rise and create a fire hazard by overflowing of flammable liquid on the ground. There is also the possibility that service station operators might be led to believe that the storage tank is porous and leaking, where, as a matter of fact, the water is entering the tank through a faulty connection, cover or cap.

If and when a storage tank is believed to be leaking, no repairs should be attempted until the tank is made gas free, and carefully tested and inspected. In most cases it will be found that the cost involved for a repair job, after taking into consideration the life expectancy of the tank, is not advisable. It is more economical and much safer to discard the tank and replace it with a new one. If a condition of this kind should occur, some thought should be given to the age of the tank to be discarded, and if the life of such tank is less than ten years, special precautions should be taken with a new tank about to be installed as regards protective coating.

It might be mentioned at this point that the life of storage tanks underground may vary over a wide range depending, of course, on the character and nature of the soil. Of approximately 24,000,000 underground tanks in use in the United States, many thousands have remained intact and have not developed a leak over a period of thirty to forty years. This experience is general and somewhat disproves the opinion that a great amount of hazard is created by underground storage where comparatively small quantities of product are involved.

ITEM NO. 2—Maintenance of Grade Surfaces: The maintenance of grade surfaces for an underground storage tank might seem entirely foreign and unrelated to the maintenance of the tank. However, when we consider the increased load and shock that can be impinged on the shell of the tank by the wearing away or removal of the soil at grade, it is immediately apparent that riveted or welded joints can become sprung, thereby causing leaks and loss of product. It is for this reason that recommended safe practices advise a substantial coverage. The installation of underground storage tanks should be made by experienced men, and where an earth coverage of sufficient thickness cannot be provided, other provisions such as a concrete slab or similar construction must be installed. In some cases, it will be found necessary to anchor the tank because of periodic accumulation of surface water.

Personally, I believe that since our present-day method of maintenance is accomplished in an indirect way, some scientific genius will have to develop a device or instrument which will make it possible to examine storage tanks and pipes underground visually and in minute detail. This idea may be fantastic in the extreme, but we have all seen developments that have rivalled our wildest dreams in many lines of endeavor.

A step toward making the invisible visible, in connection with the condition of underground storage tanks, has been the development of double shell tanks in which a standard underground tank is enclosed in a tank of similar type, design and strength, and leaving a space between the two shells of ½-inch all around. The space between the two tanks is filled with fuel oil, crankcase drainings or any non-corrosive liquid, to serve as a tell-tale for a leak that might develop in either the inner or outer tank. If the outer shell should corrode to a point to cause a leak, such a leak is limited to the comparatively small quantity of non-volatile tell-tale liquid which is immediately detected by a lower level of the sealing fluid in the tell-tale connection.

Likewise, if an inner tank should develop a leak, the marketable petroleum product which may be gasoline or kerosine, immediately becomes contaminated and discolored, indicating that the tank leaks and is not suitable for further service. A valuable feature of the double shell tank is that the contents of the tank cannot escape into the outer shell or ground since the static head of the sealing liquid is greater than the head of the product in the storage tank.

Tanks of this type are valuable for installation in basements of buildings, especially when such basements are used for boilers or manufacturing where flame or heat is required. Moreover, they have a particular advantage when installed near subways or underground conduits and passageways. As double shell tanks do not eliminate the possibility of corrosion from soil conditions, there still remains a need for positive elimination of leaks which perhaps will not be accomplished until a cheap and non-corrosive metal is developed by the metallurgical arts.

ITEM NO. 3—Maintenance of Vents: The maintenance of vents is just as important as applying protective coatings to the outside of tanks and the use of self-closing valves when filling the tank. The greatest danger in connection with vents is the partial closure of the venting screen by unnecessary or careless painting, which in turn will not permit free entry of additional stock into the tank and causes spillage and excessive clouds of vapor at the filling point. This is detrimental to the health of the operator and

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dangerous from a fire hazard standpoint. When the vent pipe must be painted, it is very much better practice to remove the vent screen and replace it after the painting job is finished.

When designing venting systems, it is well to remember that damage to underground storage tanks can happen a great deal easier through rupture by vacuum than by pressure. If screens on vents are damaged or left off and the vent pipe is comparatively short and of large diameter, the danger of explosion in the tank is much greater than if the vent line is long and the diameter comparatively small. The reason for this is that the propagation of flame in pipes is limited to a very short distance. It is easy to conceive a vent line of such length and diameter as to make it impossible for flame to reach the tank.

Present flood conditions and the many hazards accompanying them in the unfortunate Ohio Valley, should draw immediate attention of all service station operators to the importance of checking fill and vent pipes on all underground storage tanks as a definite precaution to avoid gasoline or oil spread on flood waters. All fill pipes and caps should be of approved type fitted with proper leakproof washer. When there is danger of flooding service station properties, the underground tanks not full of product should be filled with water to serve as ballast to prevent floating and to prevent collapse from outside pressure. Where tank openings cannot be made watertight in the usual manner, it is advisable to effect the sealing of the tank with long taper wooden plugs. Sealing openings should also be carried out in connection with vent pipes. These can be satisfactorily sealed with a wooden plug or cork. When flood threatens, this procedure should be promptly carried out to insure safety and prevention of possible fires which under the circumstances, would be difficult to control.

There is one point I think worth repeating, even though it may already be fully recognized by you. I recall that after the serious Pittsburgh flood last spring, much avoidable trouble was experienced by the Industry throughout that area at service stations and bulk plants through failure in some instances to recondition tank vent pipes before pumping out or refilling underground tanks after the flood. A timely item on this appears in the January 27th issue of the NATIONAL PETROLEUM NEWS as follows:

> "When the present flood waters recede, service station and bulk plant operators in the stricken area are cautioned not to pump out their tanks until first making certain that the vent pipes are clean and open. Many station operators were put to considerable inconvenience and expense after the March, 1936 flood in Pittsburgh, when their underground tanks collapsed as a result of pumping them out while their vent lines were clogged with mud, a vacuum in the tank resulting."

ITEM NO. 4—Static Electricity and Electrolysis: Static or frictional electricity is a very controversial subject although there are certain phases of the phenomenon that are generally accepted as unquestionable fact.

While on the subject of static or frictional electricity, it might be well to consider gauging devices. When metal rods, tubes or other shapes are used, they should be of non-sparking metal such as copper, brass, bronze, or aluminum. Wood can, of course, also be used. The purpose of this is to eliminate not explosion as much as fire. The fire hazard in connection with gauging underground tanks is not very severe, as all that can happen is the ignition of vapors as they exude from the tank. Explosions in tanks under normal operating conditions cannot occur as the explosive range of gasoline is quite narrow, being from 1 per cent to 6 per cent by volume. A mixture containing less than 1 per cent is too lean, and more than 6 per cent too rich to explode.

Static electricity in connection with underground storage tanks may be a cause of trouble in making deliveries from tank trucks through the accumulation of static on vehicles while in transit, and the generation of static by the flow of liquid into tanks.

It is quite true that static on trucks is generally grounded by truck drivers stepping off trucks provided, of course, the driver is not insulated by rubber footwear. At the same time, it is good practice to ground out such static as may have accumulated on the truck by contacting the filler nozzle with a ground such as the tank through the fill box connection. If grounding is effected through fill pipe connection, the static discharge wire clamp must be connected before removing filler cap. Obviously, ground contact should be maintained during the entire period of delivery and until the fill connection is closed. The advisability of screening fill pipes is debatable as screening does not prevent the ebulation of vapors. A submerged fill pipe, on the other hand, will prevent ignition of the tank contents, effect conservation of product, eliminate to a great

Floating Filling Stations for Foreign Air Service

LONDON—Floating filling stations are being built to feed the new Imperial Airways flying boats engaged on the Empire Mail service between Britain and Australia.

The Shell organization is providing 27 fueling launches which will minimize delays by delivering fuel and lubricating supplies in less time than is taken up by Customs and other formalities. Twenty-one are intended for use on the Brindisi-Alexandria link and six are being constructed at Cairo, to conform with the special navigational needs of the Nile.

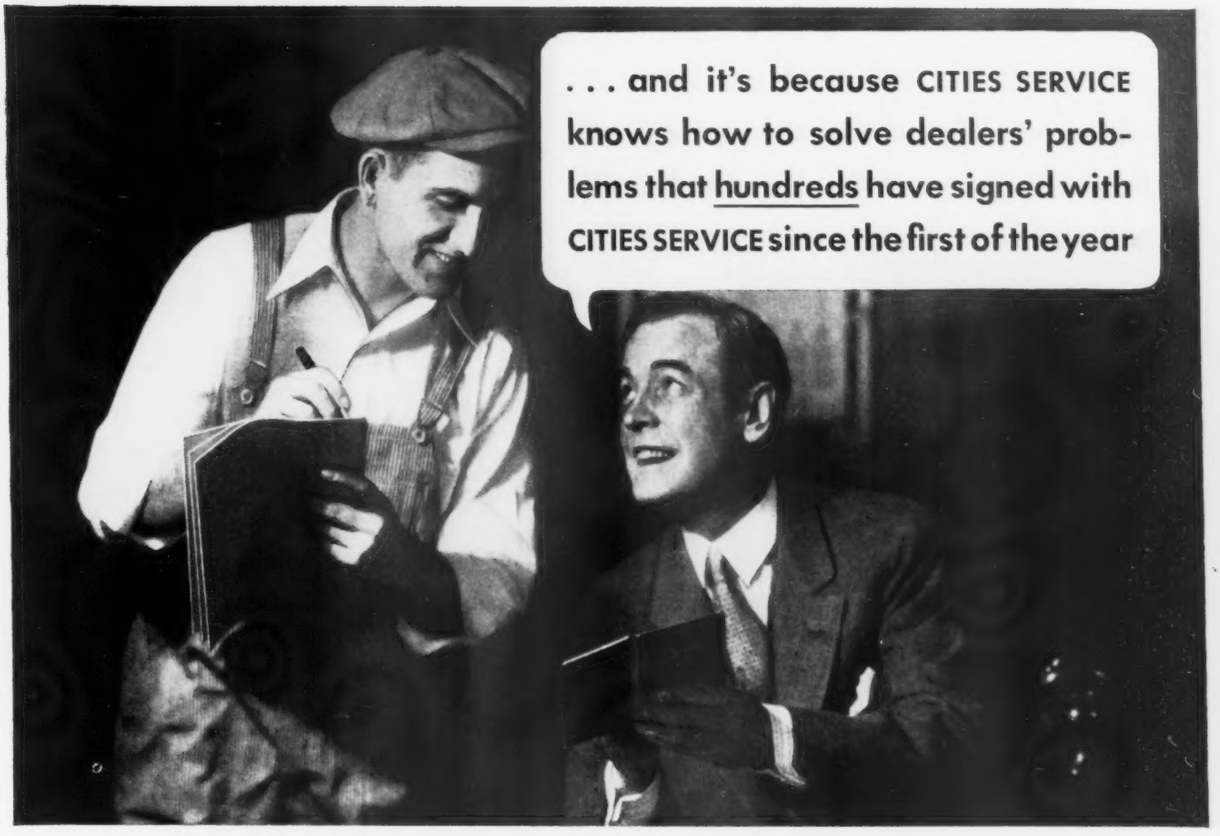
The first of these marine filling stations is now on view at Southampton, where it will be stationed. It can carry 2500 gallons of gasoline and 200 gallons of oil. The gasoline is pumped into the flying-boat at 120 gallons per minute, while the oil is transferred at 10 gallons per minute. The launch is equipped with a device to prevent air bubbles from entering the tanks of the aircraft through the fueling lines.

Similar launches are being built in France and Italy for use in those countries.

When the Empire services are in full operation there will be a floating service station at each regular point of call on the Australian and South African services.

These launches are designed not for speed but for easy handling. They have a speed of about eight knots and are powered by a diesel engine, but are capable of practically turning on their own beam and of the most delicate control. This is obtained by a reversible rudder, which enables the boat to go astern without the use of reversing gear. This rudder consists of two semi-circular plates set about the propeller so that the stream of water from it may push the stern right or left, forward or astern, according to the set of the rudder blades in relation to it. The first of the fleet showed in a demonstration how it could creep gently under the wing of a heavy flying boat and edge up to the side of the hull for coupling the delivery hose to the gasoline fill pipe.

The first of Shell's fleet of "floating filling stations" for the Empire air route between England, Africa and Australia. The boat carries 2500 gallons of gasoline and 200 gallons of oil


. . . and it's because CITIES SERVICE knows how to solve dealers' problems that hundreds have signed with CITIES SERVICE since the first of the year

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Gentlemen: Without obligation on my part, please send representative to show me the plan outlined in your PROFIT ImPROVER.

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EMPIRE OIL & REFINING CO. Tulsa, Okla.
CITIES SERVICE OIL CO. Detroit, Mich.
CITIES SERVICE OIL CO. Cleveland, Ohio
CITIES SERVICE OIL CO. New York, N. Y.
CITIES SERVICE OIL CO. Kingston, N. Y.
CITIES SERVICE OIL CO., LTD., Toronto, Ont., Canada
ARKANSAS FUEL OIL COMPANY, Shreveport, La.

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CITIES SERVICE OILS AND GASOLENES

extent the escape of vapors, and also fire hazard.

Electric current from lighting and power circuits can be a source of underground storage tank difficulties through electrolysis which is very detrimental in its action on metal placed underground, especially when such metal or tank is partially insulated by a bedding of dry sand and perhaps a concrete vault. This condition is sometimes brought about by grounding lighting or power circuits to petroleum pumping equipment and connected tanks instead of grounding to water lines as specified by Underwriter rules. Where lighting or power circuits are grounded to petroleum pipes and tanks, such grounds are termed local grounds. The Underwriters recommend that the petroleum pipes should be bonded to the water system at some convenient point.

Unless underground equipment is bonded to a water line, there is a possibility of the underground equipment and tanks having a higher potential than the water system with the result that a flow of current no matter how minute, will cause electrolytic corrosion or decomposition of metal.

Abandonment of Tanks

Under the heading of "Abandonment of Underground Storage Tanks," several methods should be considered, depending on whether abandonment is temporary or permanent, or whether the storage is merely out of service. To cover the various phases, we might divide the advisable procedures under the following subheadings:

1. Out of service on properties in use
2. Out of service on properties not in use
3. Temporary abandonment of tanks and properties
4. Permanent abandonment.

ITEM NO. 1—Out of Service on Properties in Use: When storage tanks located on used properties are out of service, no special precautions need be taken with the exception of keeping the inlets and outlets closed tight. It is also a good idea to seal these openings to prevent station personnel from filling the tank in error, and to eliminate the possibility of others opening the tank and dropping in materials such as sticks, stones, etc. Sealing tanks will also prevent what might be a very disastrous accident by the inspection of such tanks with matches by unauthorized persons.

Another hazard that might be avoided, is the danger of other product being placed into the tank, which would cause contamination of a product to be marketed in the future.

ITEM NO. 2—Out of Service on Properties not in Use: Where underground storage tanks are located on properties that are not in use but which it is planned to put into service at some future time, it is recommended that such tanks be emptied and filled to overflowing with water, after which the piping should be disconnected and the tank plugged and sealed. The need of these precautions should be self-evident when it is reflected that the property and equipment is not likely to be inspected for a considerable time.

ITEM NO. 3—Temporary Abandonment of Tanks and Properties: When storage tanks and properties are temporarily abandoned for the purpose of sale and future use by others as service stations, the same procedure should be followed as for storage tanks out of service and properties not in use. That is to say, tanks should be emptied, pipes disconnected, the tank filled to overflowing, and all outlets plugged and sealed.

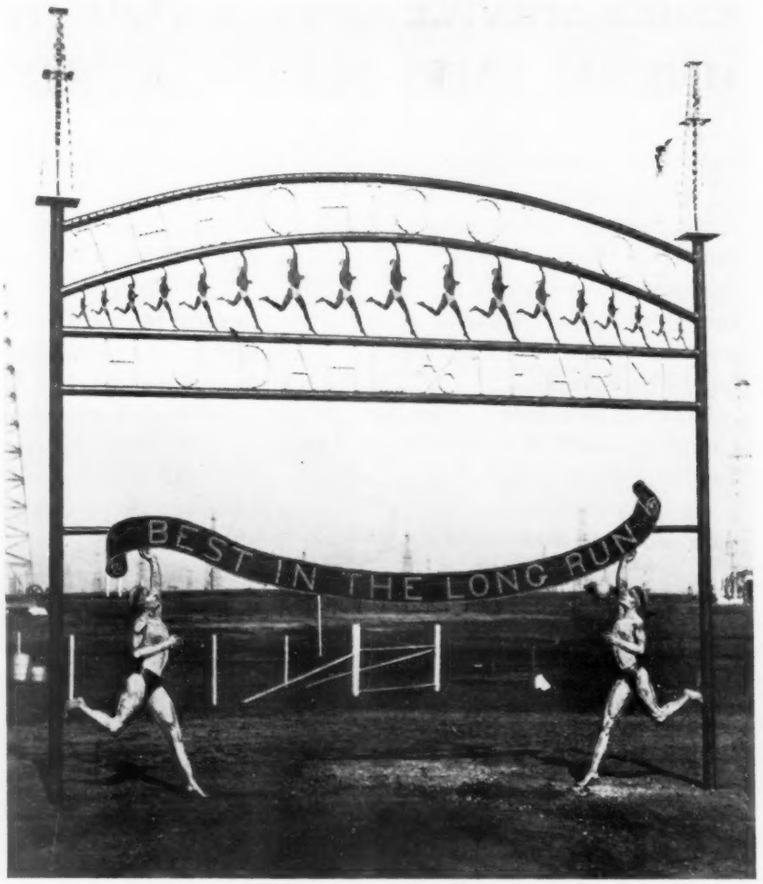
Where on such properties it is suspected or known that the underground tanks are in poor condition and may develop leaks at any time, the tanks should be filled with sand so that they cannot again be used for the storage of petroleum products.

ITEM NO. 4—Permanent Abandonment: Where tanks in good condition are to be permanently abandoned, they should preferably be uncovered and removed to a safe place within some other supervised property. It is very poor practice to remove tanks and place them in an open lot, even though precautions have been taken to plug all the openings in the tank. We are all aware of the explosive danger of so-called empty tanks, for if and when someone should remove a screw plug, a dangerous explosion could happen in several ways, such as throwing matches or cigarettes or fire crackers into the tank, or an explosion might occur from commonly occurring grass fires. When underground tanks are in poor condition, or it is decided not to salvage the tanks, connecting pipes should not only be disconnected, but removed, and in addition, the storage tanks should be completely filled with sand so that there is no possible chance of vapors being trapped within the tank.

Further remarks would seem in order on the question of abandoning tanks, if the actual work is left to contractors. Where such work is turned over to outsiders or contractors, they should be properly instructed in writing. Verbal instructions are unsatisfactory and where contractors or others are entirely inexperienced to undertake work of this kind, it would be to the advantage of the oil companies to provide an inspector to supervise the contractors labor because common labor invariably has difficulty in understanding and appreciating the hazards connected with the work.

In conclusion, it might be stated that previous experience and knowledge of corrosion with respect to metal buried underground is foresight—and foresight is safety.

Employes Build Roadside Sign



With a few pieces of scrap steel and the Marathon runner emblem supplied by the company, this sign was built in the Edmond pool by employes of the Ohio Oil Co. on the H. J. Dahl farm. The Edmond pool is 10 miles north of Oklahoma City and west of the town for which it is named

Tourists entering Michigan on U. S. 12 from the southwest may stop at this state tourist lodge near New Buffalo to rest, and to obtain vacation information. Another highway department lodge similar to this is now opened, two more to be built

Michigan Welcomes Its Tourists At Lodges Along Main Highways

LANSING, Mich. AS THE tourist enters Michigan at the southwest corner, bowling over the smooth four-lane U. S. 12 hignway just over the Indiana state line, a sign reading "Michigan State Highway Tourist Rest Lodge" looms ahead on the right hand side of the road.

A broad drive, flanked by a low log railing, invites the tourist to pull in, before a small white house nestled in a grove of old trees. The tourist enters the building, into a lounge room equipped with chairs, davenports, and with a fire place at one end. To the immediate left is an information counter, with immaculate rest rooms beyond.

Such is Michigan's official welcome to tourists coming to spend their vacation dollars on gasoline, oil, food, lodging, and amusements. Here the tourist may rest, in the building or around the spocious park at the rear of the lodge. Here he may receive accurate information about vacation facilities in the state.

The rest lodge is part of the state highway department's program of tourist aid, to further Michigan as a summer resort, to aid the vacation traveler in finding his way around the state.

The first tourist rest lodge was built on U. S. 12 just over the Indiana line, south of New Buffalo, Mich. Another lodge was opened this year and two more are to be built, so there will be lodges just within the state on four main arteries of tourist travel.

Other state tourist aids being instituted by Murray D. Van Wagoner, highway commissioner, are landscaping of beauty spots, picnic groves along trunkline highways, and "turn outs", where tourists may pull off the highway to enjoy views.

The New Buffalo tourist lodge was opened in May, 1935. After the 100,000th visitor had registered in December, 1936, there was a special radio program with W. J. Froberg, in charge of the lodge, giving an address.

A lodge was opened this year at Menominee, along the western shore of Green Bay, on the main highway from Wisconsin and points west. Other lodges are planned for Sault Sainte Marie, and for Monroe, on the highway from Ohio and the southeast.

Commercialism is barred from the tourist lodges. There is nothing for sale, and there are no advertisements inside the building or around the grounds. No folders or advertising pieces for private enterprises are distributed.

The only literature distributed at the lodges is the annual publication issued by various vacation organizations. Michigan has several such organizations. One is to promote the upper peninsula. There is another for southeastern Michigan, another for eastern and another for the western part of the state. Each organization issues an annual publication, similar to a magazine, with articles on the vacation merits of the section, and advertisements from resorts, lodges, restaurants, hotels, farms, cities, chambers of commerce, and so on.

Specific recommendations for any part of the state, or for facilities within that section, are not made. Lodge attendants first determine what section the tourist wants to visit, or what type of accommodations are desired. Then the attendant offers only broad information without specific recommendations.

The lodges are open all year, and, in the summer, the hours are extended to cover the early evening. Visitors usually start coming in during early and mid-morning hours. There is a lull over noon, with another peak during the afternoon. Inquiries are not plentiful in the evening as tourists evidently begin holing in for the night about twilight.

The daily volume picks up rapidly after the first real signs of spring, but the real heavy volume comes after June 1 when schools close for the summer.

Attendants at the lodges are experi-

An inviting spot for the Michigan tourist to pull off the highway for a picnic

enced men. Mr. Froberg had many years experience in tourist information work before going to the New Buffalo lodge. And attendants at the new Menominee lodge were in training last summer at the New Buffalo lodge.

Special "turn outs" have been constructed along trunkline highways in Michigan, where there is a good view. They are spacious and protected by a rustic guard rail. Any motorist desiring to enjoy an especially pleasant view of a lake, or of the countryside, can pull off the highway, out of traffic, and spend as much time as desired.

Landscaping projects have been under way at natural scenic beauty spots along the highways. More than $50,000 was spent last year in construction of roadside parks where tourists may stop to enjoy a brief rest during an extended trip. Springs and picnic tables are available, as well as rustic shelter pagodas, special lookout points and rustic foot trails. Cascades and pools were built where water courses flow through the development.

In addition to the more extensive projects the maintenance division of the state highway department has set out more than 700 picnic tables along trunkline highways. These are in shady nooks, near springs and streams, where tourists may stop for a picnic lunch.

Gasoline Taxed Six Billions In U. S. Since 1919

CHICAGO, April 26.—What parallels may exist between the oppressive taxation that led the Roman Empire to its final ruin, and the excessive rates of today may be drawn by the individual after a study of Finla G. Crawford's analysis of the gasoline tax in 1936.

Crawford, who is professor of political science at Syracuse University, in his fifth annual analysis, observed that too large a proportion of the cost of government is being saddled on the farmer and small-salaried man, and warned that stabilization in rates will be highly desirable if the gasoline tax is to continue popular.

This small-salaried man or average motorist today pays $1.00 for his gasoline, but gets out 69 cents' worth, Crawford pointed out. Last year he paid $49.06 in special taxes on his automobile, 65 per cent of which was taken by the gasoline tax. This is an increase of 300 per cent over 15 years ago, when special taxes amounted to $12.22.

He showed that the staggering total of $6,200,000,000 has been taken by state and federal treasuries in gasoline taxes since 1919, when the first state tax went into effect. This is more than half of the total Allied war debt and a fourth of the gross debt of the United States in August, 1919, when the war debt was at its peak.

Three-Quarter Billion

In 1919, Crawford's analysis revealed, four states first levied a road tax on gasoline and collected from it $1,022,514. Ten years later, this revenue had grown to $431,311,519, with all states levying a tax, and in 1935, the latest year for which actual figures are available, it had amounted to $616,851,671. In 1936, according to estimates, state taxes will total $685,000,000 and the federal tax, in addition, $186,321,000. In 1935, 21 states or almost half, collected more than $10,000,000 each.

Aside from the oil industry's principal commodity, gasoline, being taxed 40 per cent of its retail price today, the industry collects its own multi-million-dollar yearly tax with the largest army of private tax collectors—its service station salesmen—in the United States. Of the estimated $25,000,000 cost of collecting the enormous tax, the industry pays $22,500,000. It pays employes to record and report the tax, finances and combats evasion, supports more than 1000 tax administrators who live off the tax directly, and then contributes 20 per cent of this tax fund to purposes other than those from which the industry benefits.

Opposition Grows

How the mounting tax rates have made evasion and bootlegging attractive, how administration of the tax has become complicated because of the larger staffs, how enforcement has become more difficult and how diversion has crept in because of the ease and low cost of collection on the part of the state, Crawford describes in this 50-page booklet published by Public Administration Service, 850 East 58th St., Chicago.

But opposition on the part of motorist and oil industry alike to these high taxes has been growing steadily since 1932, Crawford observed. Some believe, he said, that this may be due to the fact that the peak of gasoline taxation has been reached, and that diversion to other funds particularly has antagonized the industry. Also, both the oil and auto industries are suffering from decreased use of their products because of the high rates.

Chapters dealing with the growth of the gasoline tax, its administration, what exempts and refunds are allowed, how the tax is distributed and diverted and attempts to check evasion are included in the booklet.

There are tables on the licensing of dealers, amounts of distributors' bonds required by the various states, allowances for shrinkage, evaporation and collection, amounts of refunds, distribution of revenues by purposes, and on net earnings of the gasoline tax by states since 1919, and similar data.

Allowances to Distributors on Gasoline Tax

For shrinkage, evaporation, handling, transit, unloading, collection and other expense, waste, loss, unaccountable losses, bad debts, leakage, spillage, tare, preparing monthly reports, etc.

No Allowance (11)

Alabama	New Jersey
Florida	Oregon
Georgia	Rhode Island
Idaho	Washington
Maryland	Wyoming
Massachusetts	

½% Allowance (1)

Virginia

1% Allowance (13)

Arizona[1]	New York
Arkansas	North Carolina[1]
California[1]	South Carolina
Connecticut	Tennessee
Delaware[1]	Texas
Maine[2]	Vermont[1]
New Hampshire[1]	

1½% ALLOWANCE (2)

North Dakota — Illinois[4]

2% ALLOWANCE (9)

Colorado[1] — Nevada
District of Columbia[2], [5] —
Kansas — New Mexico
Mississippi[1] — Oklahoma
Montana[6] — Pennsylvania[7]

2¼% ALLOWANCE (1)

Kentucky

2½% ALLOWANCE (1)

Wisconsin

3% ALLOWANCE (9)

Indiana — Missouri[3]
Iowa — Ohio[1]
Louisiana — Nebraska
Michigan[1] — Utah
Minnesota[8]

4% ALLOWANCE (1)

South Dakota

ACTUAL LOSSES ALLOWED (1)

West Virginia[3]

[1]Allowed on receipts.
[2]Distributor pays tax on receipts basis. Secures refund on filing of actual proof of loss.
[3]If reported on receipt basis—optional.
[4]Illinois also provides for two per cent for cost of collection.
[5]If charged off on books.
[6]On quantity handled.
[7]If tax is paid promptly. In addition exact losses may be deducted.
[8]On number of gallons inspected.

Distribution of Gasoline-Tax Revenues for Other Than Street or Highway Purposes, All States

	1930	1931	1932	1933	1934	1935
Aviation	$43,771	$48,753	$34,810	$22,677	$49,955	$44,290
Commerce and Navigation	90,000	90,000	90,000	135,000	90,000	90,000
Conservation (Oyster Beds)	75,000	75,000	75,000	75,000	75,000	75,000
Education and Public Schools	13,404,200	12,905,407	9,585,112	12,969,347	28,886,432	28,150,426
Ferries	.....	.....	.....	48,000	35,040	48,727
Field and Garden Seed	.....	928,570	.....	.....	.....	.....
Gasoline Inspection	.....	.....	.....	172,909	.....	.....
General Funds	4,912	885,624	18,076,692	7,831,640	43,959,286	57,184,330
Harbors and Dock Board	155,178	939,778	830,072	815,695	890,988	934,592
Police, State Revenue Department & Highway Patrol	.....	595,472	.....	354,199	.....	.....
Metropolitan District Commission	.....	.....	1,039,904	.....	.....	.....
Motor Vehicle Department Expenses	.....	185,500	.....	.....	.....	.....
Public Utilities Commission	3,000	.....	.....	.....	.....	.....
Referendum Expense	.....	.....	89,271	.....	.....	.....
Relief	.....	1,000,000	14,430,432	29,260,759	8,769,108	15,548,262
Reserve Fund	19,680	.....	.....	.....	.....	.....
Reserve for Protested Taxes	.....	.....	.....	237,127	.....	.....
Reserve for Refunds	61,334	50,000	50,000	50,000	.....	.....
Rural Credit Bonds	.....	.....	.....	1,404,569	1,907,073	2,242,176
Sea Wall	.....	98,048	.....	.....	.....	.....
State Highway Office Expense	50,227	.....	.....	.....	.....	.....
State Tax and Revenue Department	.....	37,455	260,985	.....	.....	.....
	.....	242,594	.....	.....	.....	.....
State Treasury Note Redemption	.....	.....	1,727,166	11,128	.....	.....
Counties' General Fund	.....	.....	.....	.....	.....	.....
Parks	.....	.....	.....	.....	903,396	987,652
General Fund Bonds	.....	.....	.....	.....	6,011,535	5,921,290
State Departments	.....	.....	.....	.....	46,638	12,382
Irrigation	.....	.....	.....	.....	3,730	4,106
Prison Camps	.....	.....	.....	.....	2,225	2,968
	$13,907,302	$18,081,201	$46,289,444	$53,488,050	$89,630,406	$111,246,201

Diversion in 1927, $5,296,921; in 1928, $7,860,516; in 1929, $9,260,562.

Company-Owned Cars Is Policy of Shell

Out of a total of more than 1300 passenger automobiles which the Shell Petroleum Corp., St. Louis, has in service, in only four or five instances are employes permitted to use their personal cars on company business. This policy of company ownership of cars used by its representatives was brought out recently in a discussion by D. G. Coombs, manager of operations for the company.

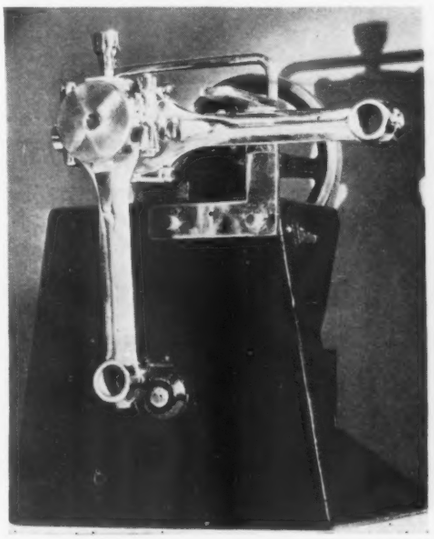
Coombs stated that the company owns the cars because that practice is cheaper and more efficient. It has been found by Shell that it is cheaper to reimburse employes for the expenses incurred than it is to grant them a car allowance. The actual cost of maintenance and repairs is also lower, he states.

It was pointed out that the total cost of the Shell cars averaged less than 4 cents per mile and that the typical allowance granted drivers of employe-owned cars is about 5 cents per mile.

Another advantage of company ownership is better maintenance of the cars. Coombs said that the company is able to specify and carry out uniform standards of maintenance and that much of the servicing is done at company garages, thus reducing the actual cost of repairs. Another advantage of company ownership of cars, according to Coombs, is that it increases the mobility of the traveling employes, resulting in the increased efficiency of the sales force. Shell officials believe their salesmen do not hesitate to cover an assignment in a new locality because of added mileage involved, a condition which has been known to occur when employes use their own cars.

The principal disadvantages of company ownership, Coombs believed, are the amount of the investment required and the difficulty of regulating the use of company cars by employes on private business.

This latter disadvantage is held to a minimum through the use of business coupes in the majority of cases. These cars are not suitable for pleasure driving by a man with a family. The cars also bear the company insigna, which also tends to restrict personal use. Close checking of call and route sheets, as well as territorial assignments, usually bring to light any excessive mileage.



The "Dragometer" designed in the motor research laboratory of the Tide Water Associated Oil Co., at Avon, Cal., to demonstrate the advantage of low viscosity motor oil in today's motor cars

Oil Drag Demonstrated

Proof of the need for low viscosity oil in modern motor cars, in contrast with high viscosity oil, is offered by a newly developed apparatus called a "Dragometer" by its designer, Charles Becker, who has charge of the motor research laboratory of Tide Water Associated Oil Co. at Avon, Cal.

The Dragometer consists of two conventional automotive connecting rods mounted on a shaft similar to the crankshaft of a motor car. The shaft is turned by a ¼-Hp. electric motor at 1800 rpm. Small oil reservoirs, one containing S.A.E. 30 and the other S.A.E. 10 motor oil, lubricate each connecting rod.

In a demonstration both connecting rods hang free until the lubricant reaches the bearing. The rod lubricated with S.A.E. 10 oil remains vertical while the other, lubricated with S.A.E. 30 immediately binds and swings to a stop arm in a horizontal position as illustrated.

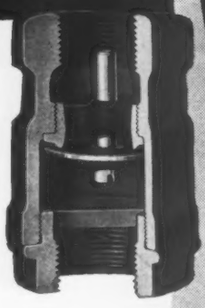
Mr. Becker has pointed out that heavier oils are unable to lubricate the close fitting parts adequately, particularly during warm-up periods when delayed lubrication may cause excessive engine wear.

The Dragometer will be demonstrated at a series of salesmen's meetings in the western territory and explained by Frank Wager, manager of motor oil sales, and M. S. Pease, assistant merchandising manager, for Tide Water Associated.

Build River Terminal

ST. LOUIS, April 26.—Construction of a river bulk plant costing $40,000 to $50,000 will be started at Bettendorf, Ia., in May. The plant will be leased to F. C. Wallace by the Shell Petroleum Corp. Throughput is expected to be over 10,000,000 gallons annually.

MORRISON BROTHERS Foot VALVES



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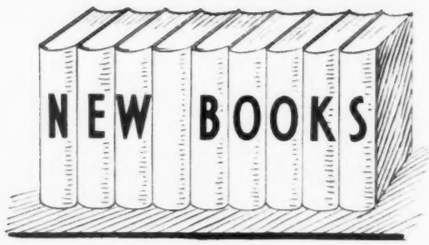

New Book on Motor Oils

Although the book, "Motor Oils and Their Application," by G. A. Zamboni, might imply from its title to be predominantly about the proper application of crankcase oils, it has a spread of interest that goes considerably and interestingly beyond that subject.

It is wide in scope, and includes such fundamental information as the origin of crudes, natural characteristics of asphalt and paraffin base oils, solvent refining, re-refining and analysis of used crankcase oils, S.A.E. recommendations and their significance, the high speed diesel engine, viscosity index and many other interesting subjects.

In its present form the book is of especial interest to station operators, repair men, fleet operators, motor oil salesmen, students, and in many cases to individual car and truck owners.

The book contains 75 figures, charts and illustrations, including many which explain the various functions motor oil performs in addition to lubricating the moving parts of the engine.

One of the many interesting diagrams shows how gasoline is used in an engine when the car is properly lubricated. The chart is based on one dollar's worth of gasoline, and gives the following breakdown: 37.5 cents of the dollar is lost through the exhaust; 36.2 cents goes to radiation loss; 7.5 cents to overcome the friction of wind resistance; 5.1 cents is lost due to engine bearing friction; friction loss through drive and differential consumes 4.9 cents in every dollar's worth of gasoline; and 3.7 cents worth is consumed in friction loss through the transmission.

The chart then shows that 26.4 cents of the gasoline dollar does the work, with 5.2 cents worth standing by for reserve power.

"Motor Oils and Their Application" may be purchased through the Book Department, NATIONAL PETROLEUM NEWS, 1213 West 3rd Street, Cleveland, O. The price is $3 per copy.

Buys Colombian Company

NEW YORK, April 21.—Carib Syndicate, Ltd., has sold its holdings in the Colombian Petroleum Co. to Socony-Vacuum Oil Co. and The Texas Corp., it was stated here today. The transaction involved approximately 20 per cent of Colombian Petroleum at a purchase price of $2,050,000.

Socony-Vacuum and Texaco purchased the other approximately 80 per cent of Colombian Petroleum about a year ago from the Gulf Oil Corp. Colombian Petroleum has the Barco oil concession in Colombia.

New Patents

Compiled by R. E. Burnham, patent and trademark attorney, 511 Eleventh Street, N. W., Washington, D. C., from whom copies may be obtained at the rate of 25c each. State number of patent and name of inventor when ordering.

March 16, 1937
REFINING

Process and apparatus for refining mineral oils—David G. Brandt, Westfield, N. J., assignor to Doherty Research Co. Filed July 23, 1926. No. 2,073,622.

Art of cracking—Eugene C. Herthel, Flossmoor, Ill., assignor to Sinclair Refining Co. Filed June 16, 1933. No. 2,073,934.

Treatment of hydrocarbons—Horace M. Weir and Richard B. Chillas, Jr., Philadelphia, Pa., assignors to Atlantic Refining Co. Filed Oct. 16, 1931. No. 2,073,953.

Treatment of hydrocarbon oils—Anthony M. Muckenfuss, Melrose, Fla., assignor to E. I. du Pont de Nemours & Co. Filed Nov. 6, 1931. No. 2,073,973.

Process and apparatus for pressure distillation—David G. Brandt, Westfield, N. J., assignor to Doherty Research Co. Filed July 23, 1926. No. 2,074,120.

Reagent and process for treating crude oils—Paul R. Hershman, Chicago, Ill., assignor to Petro Chemical Co., same place. Filed June 7, 1934. No. 2,074,183.

Hydrocarbon oil conversion—Harold C. Weber, Milton, and William H. McAdams, Newton, Mass., assignors to Universal Oil Products Co. Filed Jan. 6, 1932. No. 2,074,196.

Treatment of hydrocarbon oil—John G. Alther, Chicago, Ill., assignor to Universal Oil Products Co. Filed Jan. 6, 1932. No. 2,074,198.

Solvent refining of lubricating oil — Richard J. Dearborn, Summit, and William P. Gee, Plainfield, N. J., assignors to Texas Co. Filed May 10, 1934. No. 2,074,254.

MISCELLANEOUS

Lubricating oils—Leo Liberthson, New York, N. Y., assignor to L. Sonneborn Sons, Inc. Filed Oct. 2, 1934. No. 2,073,641.

Extreme pressure lubricating compositions—Robert L. Humphreys and Bruce B. Farrington, Berkeley, Calif., assignors to Standard Oil Co. (Calif.) Filed Dec. 8, 1934. No. 2,073,841.

Bituminous pavements of high structural strength and method of making—Charles M. Baskin, Montreal, P. Q., Canada, assignor to Standard Oil Development Co. Filed June 27, 1933. No. 2,074,010.

Non-leaking lubricant—John C. Zimmer, Elizabeth, and Ejnar W. Carlson, Roselle Park, N. J., assignors to Standard Oil Development Co. Filed March 29, 1935. No. 2,074,039.

Fluorescent hydrocarbon oils—John M. Tinker, South Milwaukee, and Viktor M. Weinmayr, Milwaukee, Wis., assignors to E. I. du Pont de Nemours & Co. Filed Nov. 21, 1934. No. 2,074,288.

* * *

March 23, 1937
REFINING

Treatment of hydrocarbon oils—Luis de Florez, Pomfret, Conn., assignor to Texas Co. Filed July 25, 1931. No. 2,074,539.

Process of extracting and recovering volatile hydrocarbons from gases—Harry E. Drennan, Whittenburg, Tex., assignor to Phillips Petroleum Co. Filed Oct. 11, 1935. No. 2,074,644.

MISCELLANEOUS

Lubricating oils—Bert H. Lincoln and Alfred Henriksen, Ponca City, Okla., assignors to Lubri-Zol Development Corp. Filed May 12, 1932. No. 2,074,338.

Low boiling hydrocarbon oils—Charles L. Gutzeit, Ithaca, N. Y., assignor to Standard Oil Development Co. Filed Jan. 8. 1931. No. 2,074,467.

Working up gases containing hydrocarbons in electric arcs (production of acetylene)—Paul Bauman,, Robert Stadler, and Heinrich Schilling, Germany, assignors to I. G. Farbenindustrie. Filed July 30, 1932. No. 2,074,530.

Textile fiber spraying oil—Roy F. Nelson, Nederland, Tex., assignor to Texas Co. Filed Dec. 21, 1934. No. 2,074,555.

Apparatus for dispensing liquid fuels, lubricating oils, and like—Abraham I. Logette and Edgar H. Dainton, London, England. Filed Nov. 12, 1935. No. 2,074,927.

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Cushing Anti-Knock Regular-Leaded
Anti-Knock Pressure 400 End Point
60-62 Better than U.S. Motor
60-62 Under 400 End Point
64-66 Under 375 End Point
68-70 Under 360 End Point
42-44 W.W.D.T. Kerosene
38-40 Light Straw Zero Distillate
32-36 Overhead uncracked Gas Oil
Cracked Fuel Oil

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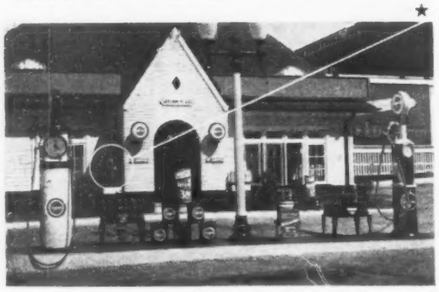

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Motor Fuel Stocks Menace Price Structure, Seubert Says

CLEVELAND, April 26.—Overproduction of crude oil is again the trend in 1937, Edward G. Seubert, president of the Standard Oil Co. of Indiana, commented in his annual report to stockholders. He said:

"The piling up of motor fuel stocks is a menace to the industry. In meeting the rapidly increasing demand for fuel oil the industry has produced in the last 15 months more gasoline than the market could absorb. This excess threatens the stability of the price structure.

"If conditions are to favor fair realization, as they did during most of 1936, there will have to be either still further increase in the demand for motor fuel or a careful restriction of refinery runs."

Production

The Standard Oil Co. of Indiana and subsidiaries sold 93,718,049 barrels (of 50 gallons) of crude petroleum and petroleum products to wholesale and retail outlets in 1936, processed better than 74 million barrels (42 gallons each), transported 94,652,000 barrels by pipelines and tankers. Other figures bearing on production, as compared with 1935 follow:

	1936	1935
Net wells completed	514	317
Productive oil wells	460	317
Gas wells	10	6
Failures	44	19
Total wells owned	2,584	2,154
Acreage of oil rights	1,813,081	1,539,881
Acres Proven and producing	43,247	36,242
Acres proven, undeveloped	3,903	4,510
Undeveloped acres	1,765,931	1,499,129
Production in barrels	26,739,353	19,316,633

The company purchased 58,591,551 barrels additional in 1936.

Refinery Runs Up

Twelve refineries averaged runs of 270,200 barrels (42 gallons) of crude oil per day to total, in 1936, 74,734,693 barrels, eight and one-quarter million barrels over 1935, according to the report.

The company's domestic crude oil production was the largest in its history and represented approximately 35 per cent of its crude runs to stills. Production, in millions of barrels, totaled 26.7 in 1936; 19.3 in 1935, and 14.2 in 1934. The report continued:

"The combined sales of crude petroleum and its products by the company and its subsidiaries totaled 93,718,049 barrels of 50 gallons each in 1936 against 80,259,234 barrels in 1935. The gain of 13,458,815 barrels or 16.8 per cent is well ahead of the average gain of 11 per cent in domestic sales by the entire oil industry.

"Measured in dollars the total sales were $328,604,094 against $290,788,019 in 1935.

Capital Expenditures

Capital expenditures of $50,000,000 to improve fixed assets valued at $347,503,000 were made in 1936, itemized as follows:

New drilling and producing facilities	$20,963,409
Pipelines additions	4,458,675
Marine equip. additions	7,411,880
Refinery equip.	10,536,188
Marketing equip.	6,545,497

Wage Increases

Indiana Standard's tax bill continued to mount last year. Seubert pointed out that 23 per cent of company's total receipts went for taxes. Tax payments were more than double net profit in 1936 and much larger than wages paid during the year. Disbursements for labor and service amounted to $62,221,892. All taxes paid totaled $94,703,507. In 1935 the total tax bill was $81,327,018, while in 1930 it was $61,375,208.

The company granted two general increases in pay in the year just past. It is understood that a further general increase was granted recently. The average wage for all employes as of Dec. 31, 1936, was $1,950.

Profits Up 55 Per Cent

Indicating the relatively high percentage of fixed charges sustained by a major oil company, figures show that the company's net profits in 1936 jumped 55 per cent over 1935 although the actual increase in dollar sales was reported at 13 per cent above 1935.

Net income of $46,371,438 in 1936 was the highest in the last six years. It was equivalent to $3.09 a share on 15,196,241 shares, compared with $1.98 a share in 1935. Dividend payments in 1936 amounted to $2.40 a share, the company reported.

Tide Water Reports 25% Increase in First Quarter, 1937

CLEVELAND, April 26.—In line with the general first quarter improvement in the oil industry over first quarter of 1936, Tide Water Associated Oil Co. reported last week a 25.1 per cent increase in gross sales for three months of 1937 over the corresponding period in 1936.

Gross sales volume for the first three months of 1937 was $32,806,200 as against $26,221,160 for three months of 1936.

Net crude oil production for the first three months of 1937 was 5,095,197 barrels, as compared to 5,025,180 barrels for the similar period of 1936, and crude run to stills for the first three months of 1937 was 9,855,643 barrels as compared to 9,408,483 barrels for the first three months of 1936.

Directors declared a dividend of 20 cents a share on the no par common shares outstanding, an increase of five cents over the 15 cents a share paid on March 1, 1937.

In announcing the dividend on the common stock William F. Humphrey, president, stated that the increase in the rate was justified not only by the improvement in earnings during the first quarter but also by the reduction in charges resulting from the recent financial reorganization of the company.

Merger Outlined

This reorganization plan, which had been underway since last August and was largely completed by December, was detailed in the annual report to stockholders. The main accomplishment of the plan was to change the character of Tide Water Associated from a holding company to an operating company, thus avoiding heavy tax penalities imposed upon holding companies by the government.

"On the basis of existing tax laws a

direct saving in taxes of $600,000 annually will be one of the permanent benefits," the report stated.

Secondly, Tidewater reorganized to overcome "the disadvantage to common stockholders resulting from the company's capital structure." For example, during the last five-year period the company paid in dividends a total of $23,213,000, of which $19,179,000 were paid to preferred stockholders and only a bit over four millions to common shareholders. Savings of preferred stock interest and dividends of $1,115,000 a year are expected.

In gneral, the reorganization plan eliminated the holding company—subsidiary set-up and merged the operating companies, Tide Water Oil Co. and Associated Oil Co., under the name Tide Water Associated Oil Co. This concern does have heavy investments in other concerns, however, notably a 50 per cent stock interest in the Mitsubishi Oil Co., an affiliate of a large industrial combine of Japan, and the South Penn Oil Co.

Properties

The net book value of properties and equipment amounted to $120,062,336 as at Dec. 31, 1936, compared with $117,806,258 reported as at Dec. 31, 1935, an increase of $2,256,078.

The total amount expended during the year 1936 for additions and improvements to properties and equipment amounted to $18,754,200 as follows:

		% of Total
Producing	$14,816,200	79.0
Transportation	353,200	1.9
Refining	1,136,500	6.1
Marketing	2,158,100	11.5
Miscellaneous items	290,200	1.5
Total	$18,754,200	100.0

Production

Tide Water Associated Oil Co. and subsidiaries, from operations during 1936, show a consolidated net income after all charges and federal income taxes of $10,217,928, equal after preferred stock dividend requirements to $1.11 a share on the average number of shares of common stock outstanding, according to the annual report of President Humphrey. In comparison with 1935 this represents an increase of 30 per cent in net profit and an increase of 52 per cent in earnings per common share.

Major comparison in the consolidated balance sheet and income statement are as follows:

Balance Sheet	1936	1935
Cash and marketable securities	$7,561,656	$13,495,505
Accounts and notes receivable	10,924,093	9,766,387
Inventories of crude, refined products, material and supplies	31,858,538	26,695,486
Total current assets	50,344,287	49,957,378
Total current liabilities	18,354,031	16,274,877
Properties and equipment (net)	120,062,336	117,806,258

Net Income	1936	1935	Change
Net income from operations	$10,217,928	$7,865,701	+$2,352,227
Pfd. stock div'd'nd requirements	3,757,326	3,757,326	.....
Net income appl. to comstock	$6,460,602	$4,108,375	+$2,352,227
Per share, on av. number shares outstanding	$1.11	$0.73	+ $0.38

Current assets at the close of 1936 aggregated $50,344,287 and included cash and marketable securities of $7,561,656, accounts and notes receivable of $10,924,093, and inventories of crude oil, refined products and material and supplies of $31,858,538. Current assets at the close of 1935 amounted to $49,957,378.

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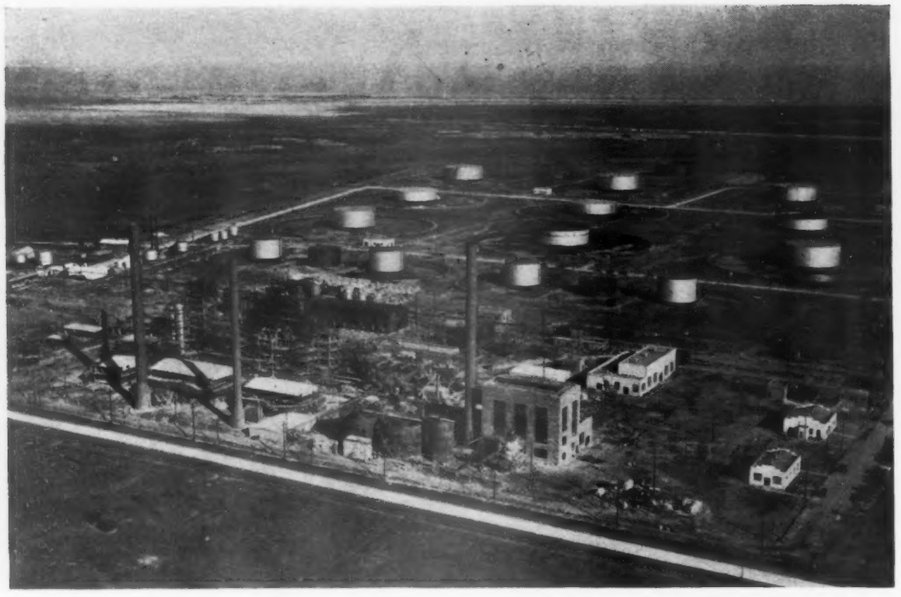

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Some More Recent Trends In Cracking And Polymerization

By ARCH L. FOSTER, Technical Editor

After the Golden Age of cracking technology development, the more recent advances in methods have progressed apace with little of fanfare to call the various steps in progress to the attention of those in the industry not directly connected with cracking activities. Most of the developments of the last five years have the disadvantage, from the viewpoint of startling publicity, of being a rather continuous series of small improvements, no one of which is epoch-making in its significance.

Yet from the summation of the results of *all* the innumerable refinements of process and equipment which have been adopted has come the highly efficient cracking process as we use it today. From the 25% yield of especially poor quality cracked distillate, low in anti-knock rating and well-nigh impossible to refine properly, as was produced by the cracking unit of 15 years ago we have progressed to 50% to 80% yields of 65 to 75 octane number cracked gasoline, the mainstay of the refiner in his efforts to make better motor fuel.

Among the earliest advances was the development of the reaction chamber and the "soaking coil," and learning to utilize these tools for producing better fuels. Gum and gum-forming materials bothered color and color stability; reagents which remove the gum-producers also remove the higher octane number constituents; very possibly these two terms are synonymous and refer to the same materials, in part at least. The chemist found substances, inhibitors, which receive the attack of oxygenation and polymerization to prevent or retard gum formation. Vapor phase and liquid phase treating methods are developed, to permit the refiner to retain the anti-knock quality of cracked fuels, while ridding the fuel of the objectionable gums and gum-formers.

Recently two schools of thought have grown up relative to the use of the reaction chamber, and the soaking time to which the charge is exposed in the chamber. One group believes the reaction chamber to be indispensable to the best results from the cracking operation; this group, comprising a large proportion of the cracking capacity here and abroad, believes it has

IPT Contents

Economics of Gasoline Treating Undergoing Rapid Revision . . . by P. S. Nisson and W. B. Ross 63

A summary of the costs of sweetening and treating gasolines by various processes, and the different results obtained by each process.

Treating Light Distillates by the PbS Process . . . by D. B. Nutt and J. A. Altshuler 67

Major principles of the Stratford PbS treating process are presented here for the first time.

found an efficiency by the use of the chamber which cannot be equalled by any other system or principle.

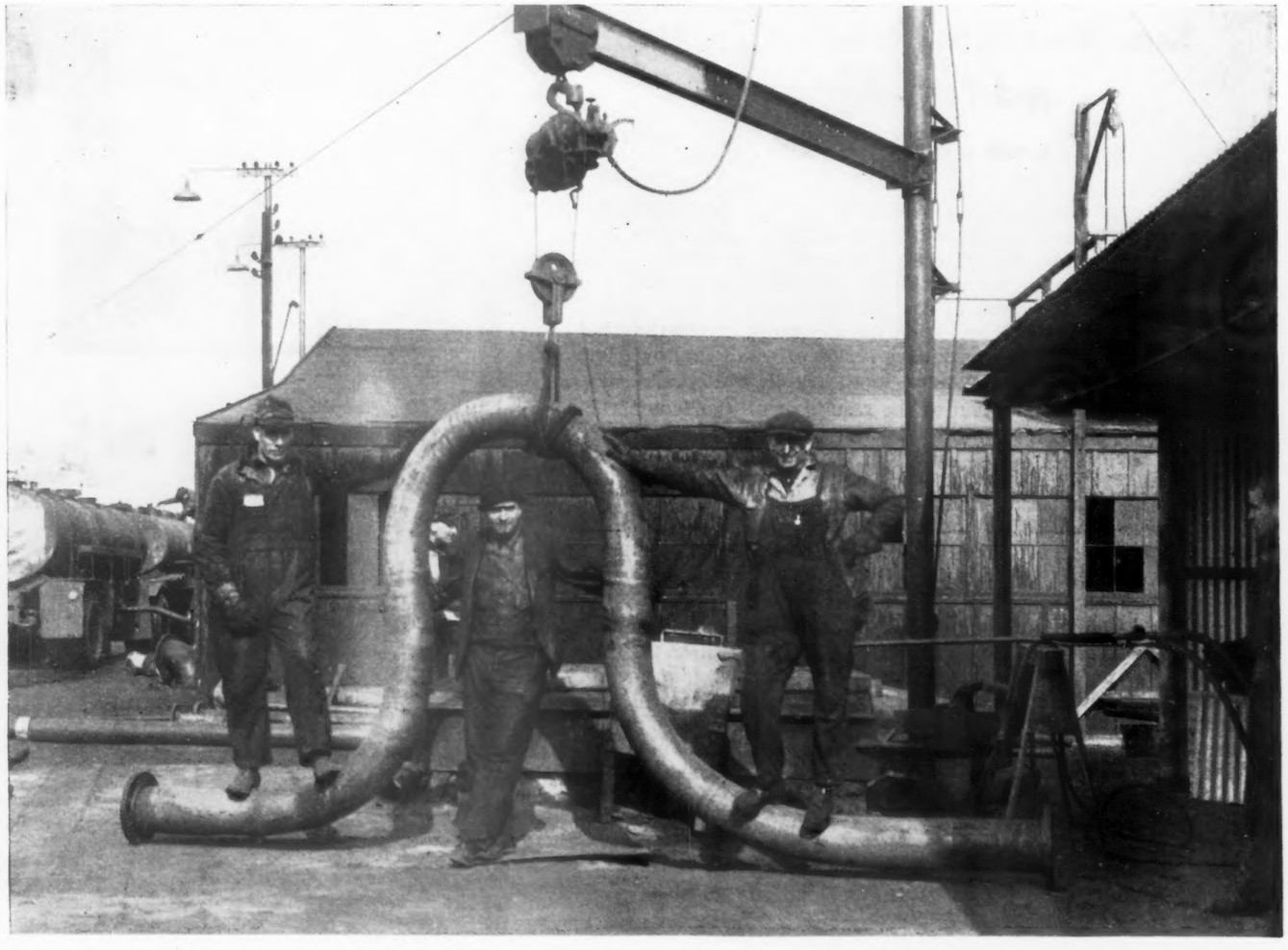
Another school believes that the reaction chamber, very nearly universally used during past years in all of the widely used processes, has outlived its usefulness. A reaction coil or coils, the soaking section so-called, this group believes, serves the same general purpose but serves it better and more cheaply. Obviously we do not know which contention is correct, nor do we expect to reach a conclusion on this question without the aid of a large amount of information suppliable only by those organizations developing and operating cracking processes; the only aggregations capable of determining the answer are those actually experimenting and operating on plant scale to find out what happens in cracking, and how they get the best results.

More recently polymerization of gases has been developed to augment and improve the output from the cracking still. The first process to reach the stage of general applicability was the catalytic process, operating on unsaturated gases from the cracking plant. The thermal process is applied both to saturated and unsaturated gases polymerizing them without catalytic aid. The newest development is that by which saturated natural gases, propane and butane chiefly, are dehydrogenated by heat and pressure, then polymerized catalytically to motor fuel hydrocarbons. The same results are attained by purely thermal means, qualitatively speaking at least; we are not comparing the relative efficiencies of the two types of process.

Thinking technologists are studying carefully the possibilities of simplifying the polymerization principle, to reduce costs and produce a desirable commercial product. So far, the "poly" plant has been a separate unit, operating with its own prime movers, furnaces, coils and towers. What is to prevent us, technologists are asking, from adding another coil to the cracking furnace and pumping the polymerizer charge through that, utilizing the main heater for all purposes rather than to build a separate unit? Some are even pumping liquefied light products through a light oil coil in the main heater separately or along with heavier distillate products, as kerosine or heavy naphtha, using higher temperatures and pressures, with or without varying the time in soaking coil or reaction chamber, and are determining what advantages may be derived from this principle.

Whatever the final answer may be, the idea is an interesting one with which to experiment. Who knows but what the polymerization unit of the future may be merely a coil or coils in an even more complicated heating unit, a "poly" plant so incorporated in the main cracking as to be an integral part of it? It seems not too much to imagine that the present type of unit may disappear as such, to be supplanted by an entirely different unit, similar probably in principle but differing diametrically in design and operation.

Such a development requires very little imagination. Already in more than one plant some remarkable results are obtained, data which is not released and which is not considered the last word, by any means, in this field. In one or two instances refineries are making too little cracked gas to supply one set of burners in the furnace. The whole development may well change the cracking picture materially.



In making such large pipe bends as this one shown here, the straight pipe is filled with sand, heated, and a block and tackle attached at the proper point, to pull the pipe to the desired radius. It is a ticklish problem, to avoid both wrinkling, and also thinning the pipe wall. C. S. Cummins, (left) is an expert pipe bender with Standard Oil Co. of Ohio, where this bend was made, with the aid of Steve Gazdak (center). Andrew Kovalycsik (right) installed the bend in Sohio's plant No. 1 in Cleveland

ECONOMICS Of Gasoline Treating Undergoing Rapid Revision

By P. S. NISSON* and W. B. ROSS*

(Presented under the title, "The Economics of Treating and Inhibiting Gasoline", before Western Petroleum Refiners Association, Hot Springs, Ark., April 26-28, 1937).

INSTALLATION and operating costs are given here on the Osterstrom clay-liquid phase treating process; the Gray vapor-phase clay process; the Stratcold acid process, the Lachmann zinc chloride process, as well as the familiar doctor method.

Costs of adding gum inhibitors are given; operating costs vary from 0.25 cent to about 2.25 cents depending on the chemical used, it is stated.

IN MANUFACTURING motor fuel for internal combustion engines, the refiner must keep in mind two paramount factors. The first is to deliver a final product of suitable quality and the second is to do this at lowest possible cost. While it may be reversing the proper order of things, the importance of the preservation of quality justifies the mention of it before giving the details of just what constitutes quality. It is rather obvious that once a gasoline has been made, there should be as little chance as possible in its quality from the time it leaves the refinery until final consumption. The criteria of quality of varying importance are gum content (potential or dissolved), stability of gum characteristics as determined by resistance to oxygen under pressure, sweetness or odor, freedom from corrosive characteristics, sulfur content, vapor pressure, octane number, color and distillation range. Ordinarily when speaking of treating gasoline, certain of the characteristics as listed above are excluded. This applies particularly to vapor pressure and distillation range which are, or should be with proper facilities little affected by treating. For this reason our discussion will not deal with this part of gasoline quality.

*The Pure Oil Company.

The writers of this paper do not intend to set up what constitutes proper criteria of quality as regards any of the above items. The individual refiner will have to determine these for himself, based on many factors with which he alone is entirely familiar. It naturally follows that each refiner must really determine for himself, based on what constitutes adequate quality for his materials, just how these properties may be most economically attained. Such being the case, it is hoped that the differences between the experience of others and that described in this paper will be interpreted as normal variation in a rather complicated manufacturing process.

A further difficulty which many times in the past has obscured the proper valuation of refining processes, is that methods of cost accounting have not been standardized in the petroleum industry. One part of this accounting procedure which has been at times almost entirely neglected but which is more recently receiving proper attention, is the matter of degradation of one quality in processing the gasoline to attain another. This applies principally to the question of octane values. For many years the average refiner has had no idea just what doctor sweetening was costing him because he did not appreciate the effect of treating with doctor solution and sulfur upon octane value and more recently on tetraethyl lead susceptibility.

The discussion below may be of some assistance to the individual refiner in checking over his present methods of processing, and perhaps with the aid of some experimental work on his own products, to arrive at the most economic handling of gasoline in his refinery. If this be true, the purpose of the paper will have been achieved even though the answer to a particular set of conditions is not contained in it.

The treating of gasoline may be roughly sub-divided into two classifications, though very often a single refining process will take care of both. To achieve proper color, gum content, or stability of certain properties in storage, the raw product in question may be treated with sulfuric acid, an absorbent, or by miscellaneous materials. Included in this category should be addition of an anti-oxidant or inhibitor which may be used by itself to deliver a satisfactory product, or combined with any of the processes mentioned above.

The second classification has, by a combination of circumstances, achieved an importance in the treating of gasoline which is not entirely consistent with its real value. Reference is made to the sweetening of gasoline, primarily a treatment to impart satisfactory odor to the finished product.

In treating gasoline under the first classification, the simplest and most economical method is the addition of anti-oxidant to either sweetened or washed gasoline. Whether or not a merchantable gasoline can be made by sweetening or washing and inhibiting depends, of course, on the nature

TABLE I

Crudes	Straight Run	Low Pressure Cracked	High Pressure Cracked	Casing head	Tests Before Inhibiting A.S.T.M.	Copper	I.P.		Tests After Inhibiting A.S.T.M.	Copper	I.P.	Cost/bbl.
1. 41% Mid-Continent.. 59% Pennsylvania....	53.09%	37.95%	...	8.96%	1.4	35	2.75	Average	1.25	11.2	6.15	$0.0215
					0.2-3.0	10-70	1.5-4	Range	0.2-3.0	7.5-20	6-6.5	
2. 6% Pennsylvania..... 94% Mid-Continent..	36.00%	16.68%	44.54%	2.78%	0.85	50.5	3.25	Average	0.93	15.7	4.27	0.0026
					0.8-1.2	36-74	3-3.5	Range	0.4-2.0	9-19.5	4-4.6	
3. 100% Mid-Continent.	48.76%	9.59%	27.80%	13.85%	1.3	53	3.75	Average	1.11	7.2	4.21	0.0054
					0.6-3.0	12-75	3.5-4.0	Range	0.2-2.6	2-11.4	4.0-5.0	
4. 38.5% Corning..... 61.5% Mid-Continent.	46.44%	22.97%	24.84%	5.75%	0.76	64	3.52	Average	0.63	10.6	5.61	0.0123
					0.4-1.6	21-127	3.0-4.75	Range	0.4-1.0	8-15	5.2-6.3	
5. 56% Mid-Continent.. 44% Michigan.....	37.78%	34.91%	27.28%	0.03%	1.92	13.9	3.49	Average	0.85	9.8	4.78	0.0060
					0.5-2.0	9-20	2-4.5	Range	0.0-2.2	2.6-13.9	4.3-6.0	
6. 88.6% Mid-Continent. 11.4% Gulf Coast....	48.32%	4.00%	47.65%	0.03%	1.31	34.7	3.0	Average	1.66	9.4	6.38	0.0227
					0.4-3.2	12-58.5	2-3.75	Range	0.8-2.6	4.4-13	5.25-6.75	

of the material being handled and the quality desired. The equipment necessary for the addition of the inhibitor is not expensive for the reason that the inhibitor may be injected into the gasoline in the blending operation. The equipment to handle 10 or 15 thousand barrels of gasoline per 24 hours can be installed at a cost of $2000 to $3000 at the most. Some figures available to the authors and given in Table I indicate a total cost of $0.0026 to $0.0227 per barrel treated for the entire operation, including the anti-oxidant. The cost of the anti-oxidant is from 70% to 90% of the total cost. Table I shows the details of the gum and induction period tests together with the cost of inhibiting of six commercial gasolines. The figures give the average for a considerable period of operation. In all cases the low pressure cracked gasoline has been treated with an absorbent.

IF ALL gasoline could be finished thus, there would be no problem to discuss. It must be borne in mind that inhibiting involves no loss of gasoline or degradation in quality. Octane number or lead susceptibility is totally unaffected initially. The only precaution which must be taken in the storage of inhibited gasoline—since anti-oxidants as a rule are slightly soluble in water or are attacked by caustic soda and the like—is to avoid loss of inhibitor through contact with these materials. If the proper precautions are taken depending on the initial tests and the amount of inhibitor added to the gasoline, quality, as regards octane and gum tests, will be maintained for an extended period of time.

However, it has been noted that certain gasolines have either a limited response to inhibitor or practically no response. In addition certain other gasolines have a sufficiently high dissolved-gum content to make a further refining operation necessary for that reason alone. If the desired quality cannot be achieved by the use of anti-oxidant alone, the use of an absorbent material may either give a gasoline, which, followed by sweetening or washing, is a satisfactory product, or one that can be easily made so by the use of an anti-oxidant. The two better known methods, both normally using fullers earth, are the Gray process and the Osterstrom process. Both depend on selective polymerization for the refining action. The former operates in the vapor phase; the latter in the liquid phase.

The operation of Gray towers is probably familiar to all refiners and where an end point gasoline is delivered by a cracking unit, the vapors pass at equilibrium boiling point directly from the final fractionating column through the Gray equipment and after-fractionator, whose purpose is to remove entrained polymer material. This means that the only operating costs involved cover the use of the additional equipment, the renewal of the bed of fullers earth and the royalty. The cost of the equipment (1) will average between $15 to $25 per barrel daily capacity. The paid up royalty is $35 per barrel of daily average production. Some published figures (1) on the operation of a direct connected Gray tower based on the conservative average of 4000 barrels per ton of fullers earth indicate a cost of $0.0057 per barrel. From the experience of the authors this figure is high and the average cost on low sulfur stocks principally of Mid-Continent origin, is from $0.002 to $0.004 per barrel. The low operating costs noted are, of course, very important, but more important is the fact that due to the highly selective action of the fullers earth there is no volumetric loss corresponding to that which results by contact with sulfuric acid. A certain amount of the gasoline—from 0.5 to 1.25% of material cracked at super atmospheric pressure—is polymerized outside of the gasoline range and eventually finds its way to fuel oil. But according to the claims of The Gray Processes Corp. (1), this loss is possibly off-set by secondary polymerization of cracked gases to higher boiling material falling within the gasoline range. The further claim is made that there is no discernible decrease in octane value of gasoline by this method of handling. Certainly the experience of the authors would substantiate the claim that this loss on high pressure cracked gasoline is under 1 octane by the A.S.T.M. motor method. With low pressure cracked gasolines of the Gyro type, the operating cost would run higher in proportion to the reduced yield per ton of fullers earth. The loss by polymerization to material outside of the gasoline range may run as high as 3 to 4%.

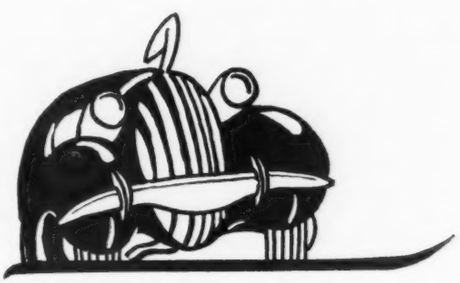
The use of fullers earth under superatmospheric pressure and at elevated temperatures is known to the industry as the Osterstrom process. The limitation in the use of it is occasioned by the fact that it is necessary to condense the make of a cracking unit, pass it through a tube still under considerable pressure, then through a small bed of fullers earth, after which the material is flashed into a fractionating tower. The latter separates the polymers as the bottoms and gives the treated gasoline as the overhead product. The conditions found most advantageous in the industry are a pressure of from 700 to 1000 pounds and a temperature of 475° to 575°F. The cost of installation runs from $22 to $40 per daily barrel of material treated. The royalty is the same as that for the Gray Process, and the operating cost runs from $0.0225 to $0.040 per barrel. The losses, both as to volumetric reduction in gasoline yields and octane, approximate those obtained under the Gray process. The feature which distinguishes the Osterstrom process and makes it advantageous for use with products difficult to treat, is the fact that the extent of polymerization and thus refinement can be controlled by varying the temperature and/or pressure. Usually the variation of the temperature alone is sufficient to give the desired effect.

THERE are numerous other catalytic or chemical reagents which are used to treat gasoline for reduction of gum or attainment of other desired qualities. Reference will be found in the literature to the use of numerous catalysts and reagents, but the only one which has achieved commercial importance is the Lachman process employing a concentrated solution of zinc chloride at elevated temperatures. In this process, a 70 to 85% solution of zinc chloride is used at a temperature of from 265° to 410°F., depending on the boiling range of the material undergoing treatment. The solution is sprayed downward through a packed tower and meets the ascending raw vapors. The refining action is apparently catalytic, causing selective polymerization, although some claim is made that with proper control a product not requiring any further treatment for sweetness can be delivered. It is also stated that reduction in sulfur content can be effected. This is reported to reach 30 to 40% (2) of the original sulfur content. The writers do not have any figures available as to installation costs and the only figure as to processing cost is $0.06 (3) per barrel on a normal cracked distillate. It is claimed that the solution handling losses in this process is less than 1% and the polymerization loss is from 1% to 3%, depending on the type of material treated—the higher figure presumably applies to "vapor phase" cracked stocks. According to published data the octane value is practically unaffected. By this method of treating, gum, as interpreted by the various methods, is reduced and under certain circumstances practically all mercaptan sulfur removed.

The use of sulfuric acid for various refining purposes in the petroleum industry is very thoroughly covered in the literature. It was practically the first chemical reagent used in the industry, certainly to any great extent. Where a high sulfur stock is being handled, and it is found necessary to reduce the content, sulfuric acid is still the only reagent which gives reasonably satisfactory results. A great deal of work has been done in developing this process covering the variables of concentration of acid, time and temperature. However, with more normal cracked stocks it is possible to use processes previously mentioned in this paper and it is on the basis of such stocks that the following discussion is based.

In acid treating low sulfur gasoline one may use either the traditional batch or continuous treater. The former type of equipment, of course, gives excessive losses and its

Tell them the real story



If you sell your gasoline blind, the motorist knows he has to take his chances—and you have to take your chances on his business

If you just tell him it's "the best" he may not believe you—he's heard that before

If you tell him it's the best because it's Dubbscracked he's interested He tries it and comes back—you have made another customer

It pays to sell Dubbscracked gasoline

You can sell it in sign language

A sign on every pump to tell them it's YOUR Dubbscracked gasoline

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

use in the industry has been practically eliminated for this purpose. For better control the Stratford process (4) has been developed which, by the use of centrifuge equipment, gives closer control on time of contact and separation of sludge. The Halloran process, well known on the Western coast, is particularly applicable to high sulfur gasolines. For this reason the higher installation and operating costs are not included in our figures.

In all acid treating of gasoline and particularly in the handling of cracked stocks the treated material must be rerun on some type of distillation equipment to give a finished product. In some cases greater economy is obtained by separating by fractionation the lighter ends not requiring treatment. This reduces the quantity of material acid treated and rerun. Equipment for acid treating gasoline costs from $15 to $30 per barrel daily capacity. Redistillation equipment will range from $35 to $50 per barrel daily capacity. The treating cost will run from $0.025 to $0.045 per barrel. Depending on the quantity and strength of acid used, the volumetric or solution loss in treating will run from 1.5 to 2.5%, and the polymerization loss from 1 to 2%. The reduction in octane value of finished gasoline will be on the average of from 2 to 3 octanes by the C.F.R. motor method and the increase in tetraethyl lead requirement is from 0.2 to 0.5 c.c.'s per gallon.

The refining steps described above are chiefly for the purpose of reducing gum, stabilizing the qualities of the product under treatment, or improving color. As mentioned above, the matter of delivering a so-called sweet product is considered an important part of refining gasoline. The question of sweetening is considered by itself in order to facilitate a direct comparison of costs and losses, even though in acid treating the treatment for reduction of gum and stabilization of properties may be combined with the sweetening process.

Traditionally, gasoline is sweetened by the use of sodium plumbite solution and sulfur. In spite of advances made in the art, probably most of the sweetened gasoline sold in this country is still processed by the use of these reagents. Continuous equipment for doctor sweetening will cost from $10 to $20 per barrel daily capacity of material handled. Some figures available to the authors indicate a total sweetening cost of from $0.0082 to $0.0216 per barrel. This covers a multiplicity of stocks, mainly of Mid-Continent origin but including some Gulf Coast, Ohio and Michigan crudes. For the straight run gasolines the chemical cost varies from $0.0011 to $0.0116 per barrel. For low pressure cracked gasoline the chemical cost runs from $0.0017 to $0.0109 per barrel, and on the high pressure cracked gasoline from $0.0017 to $0.0124 per barrel. The range of volumetric loss in the process is from 0.1 to 0.75% and the average is very close to 0.25%. Degradation of quality has not been sufficiently accentuated as regards sweetening until recently. It is now apparent that as much as 3 octanes may be lost with an increased tetraethyl lead consumption of .4 c.c. per gallon of gasoline. The value of precaustic washing in the sweetening process to effect the complete removal of mercaptans and thus minimize the octane loss and increased consumption of tetraethyl lead is discussed by Dr. Rippie. (5)

If gasoline is caustic washed rather than sweetened, it is estimated that a savings in chemical cost of from 70 to 90% and a reduction of around 50% in processing cost would result. And, since there is no degradation of octane value, the increased tetraethyl lead requirement noted above is automatically eliminated. Another important consideration is the effect of excess sulfur left in gasoline by doctor sweetening on increasing anti-oxidant requirements. However, since under proper conditions as described a satisfactory product can be made by the proper selection or combination of these processes followed by washing with caustic soda solution, the authors find it difficult to justify doctor sweetening by any process. Considering the almost complete elimination of contact of the motorist with the odor of the gasoline he is using and the debatable nature of this quality, it hardly makes a reasonable or substantial standard on which to base a refining process.

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A 4000-barrel Dubbs cracking unit, and a 3000-barrel re-forming unit installed in France, as a part of the effort of that country to become self-sustaining in the supply of petroleum refined products

TREATING LIGHT DISTILLATES

By the PbS Process

By D. B. NUTT* and J. A. ALTSHULER**

(Presented under the Title, "The Stratco PbS Process", before the Western Petroleum Refiners Association, Hot Springs, Ark., April 26-28, 1937).

THE use of lead sulfide in sweetening light distillates has been developed by the two companies represented in this paper, over a period of six years. The authors claim a reduction in chemical costs of about 50% or more, about 0.5 octane number loss, and greatly decreased volumetric loss by as much as 1.5%.

THE sulfur present in raw gasolines may occur in the free or elementary state, some as hydrogen sulfide, but the largest amount is present in the form of organic derivatives. This latter group is divisible into two classes, (1) the acidic, and (2) the neutral. The first class includes mercaptans, which, together with hydrogen sulfide, are mainly responsible for the unpleasant odor, and positive reaction to the "doctor" test. The second class includes the organic disulfides, sulfides, and thiophenes, which in general are sweet to the "doctor" test.

Hydrogen sulfide, if present in the gasoline, is removed easily by applying caustic soda solution, since it is a comparatively strong acid and either or both of the hydrogen atoms may be replaced to form metallic sulfides which are water soluble. However, mercaptans are relatively weak acids and sodium mercaptides are hydrolized readily as shown by the reversible reaction: $RSH + NaOH \rightleftarrows RSNa + H_2O$. In other words, unlike hydrogen sulfide, the removal of mercaptans from gasoline by caustic soda solutions is extremely difficult to complete, and other sweetening methods had to be found.

Refiners at an early date turned to the now well-known sodium plumbite and sulfur (doctor) method of treatment in which mercaptans are converted to disulfides through the media of lead mercaptide formation, sulfur being used to oxidize the lead mercaptides to the corresponding organic disulfide and lead sulfide. In order to reduce chemical costs lead sulfide is then regenerated to sodium plumbite. It was soon noticed in commercial practice that the use of regenerated doctor solution frequently resulted in increased ease of treatment, and further, that the explanation of this effect was the presence of some non-converted lead sulfide in the regenerated doctor solution. This discovery resulted in the development of several methods of lead sulfide treatment. In its earlier form the method was to contact the sour gasoline with a suspension of lead sulfide in sodium plumbite solution, completing the reaction by adding sulfur as usual. Later, Rowsey (1) found sweetening could be accomplished by contacting the sour gasoline with a suspension of lead sulfide in caustic soda solution while blowing air through the mixture; in many cases it was necessary to add sulfur to complete the reaction. The inherent disadvantages of these earlier methods are discussed below.

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I. The Stratco PbS Sweetening Process—Method of Operation

In attempting to sweeten many gasolines, particularly cracked, using a suspension of lead sulfide in caustic soda, employing no sulfur, it was found that the gasoline suffered a severe darkening and the reagent developed a tendency to carry-over with the sweetened gasoline resulting in large chemical losses. It was determined that these difficulties were attributable to the formation of undesirable concentrations of soluble lead salts within the reagent by the action of the process air on the lead sulfide. Reprecipitation of the lead compounds as lead sulfide was found to eliminate this difficulty.

In the improved PbS method of sweetening, therefore, sour gasoline is intimately contacted with preformed dense and quick-settling lead sulfide suspended in strong caustic soda solution. To this mixture is added a small positively regulated quantity of air for the purpose of activating the reagent; also a sufficient quantity of aqueous sodium sulfide solution is fed continuously to the mixture for the purpose of precipitating all excess soluble lead salts that are formed in the sweetening operation. Thus, the lead sulfide reagent is maintained in a desirable chemical balance, and the sweetening operation is accomplished essentially as a catalytic oxidation under controlled conditions. In this manner consumption of treating chemicals by side reactions is reduced to a minimum.

The operating procedure may be seen readily by reference to the typical flow diagram, Figure 1. Lead sulfide reagent and sour gasoline, together with small volumes of air are fed into the system through the contacting device. The amounts of the latter depend upon the sourness of the raw gasoline. These intimately mixed constituents pass to a horizontal settler where the reagent settles out. The reagent recirculation pump takes suction on the reagent settled out in the bottom of the settler, and discharges to the contactor; the volume of reagent recirculated varies from 10 per cent to 50 per cent, or higher, again depending upon the sourness of the gasoline. The sweet gasoline, containing a very small amount of caustic and reagent in suspension, then passes through the rock packed clarifier and thence to storage. Flow controllers on the feed, air and sodium sulfide make for ease and utmost simplicity of operation and greatest economy of chemicals.

The most important feature of the operation (and that *upon which* the *improved process* is *based*) is the maintenance of the reagent in a substantially *balanced condition* by continuous addition of the correct volume of sodium sulfide solution. This is most readily accomplished by the flow controller.

Second only in importance is maintaining the strength of the caustic soda solution. This solution loses strength gradually owing to the addition of the aqueous sodium sulfide solution and the formation of water by the sweetening

reactions. It has been found that when the caustic strength falls below a certain minimum, depending upon the character of the stock being treated, treatment becomes more difficult and the tendency of the PbS particles to pass out of the settler with the sweet gasoline increases, resulting ultimately, if allowed to continue, in carry-over of reagent to finished gasoline storage. At such times the *caustic portion* of the reagent is removed from the system and replaced with stronger caustic solution and the sweetening operation is resumed. The operating cycle in this respect varies from ten days to three months, depending upon the character of the gasoline being sweetened and the volume of sodium sulfide solution added. The weak soda solution may be used for hydrogen sulfide removal or elsewhere in the refinery where caustic is required.

It has been found also that after long continued use the reagent decreases in activity, probably because the PbS particles in the reagent become coated with a film. The reagent is then removed from the system and revivified. This procedure consists merely in washing the lead sulfide with hot water and steam for a short time which results in removal of foreign bodies constituting the film. The clean lead sulfide particles drop to the bottom of the washing vessel, are mixed with strong caustic, and returned to the system for use. The frequency with which the PbS requires washing depends upon the characteristics of the sour gasoline—generally from three to twelve weeks.

Process air requirements are very low, in general from nil to about 0.15 cu. ft. per barrel except with high mercaptan content stocks where air requirements may reach a maximum of 1.0 cu. ft. per barrel. The nitrogen and any excess air are removed from the system through an inverted steam trap installed on the settler. This gas may be returned to a vapor recovery system although experimental work has indicated that the amount of hydrocarbon carried by the gas is almost negligible.

The finely divided PbS and caustic, carried in suspension, in the sweet gasoline entering the clarifier are removed by the coalescing action of the rock, and flow to the bottom of the vessel. The small amount of reagent, accumulating in the bottom of this vessel, is removed about once every eight to sixteen hours and returned to the system.

The several PbS sweetening plants now in operation either run continuously or do the required amount of treating in a part of an eight-hour shift and shut down for the balance of the day. Substantially no adverse effect has been noted during discontinuous operation, as compared to continuous.

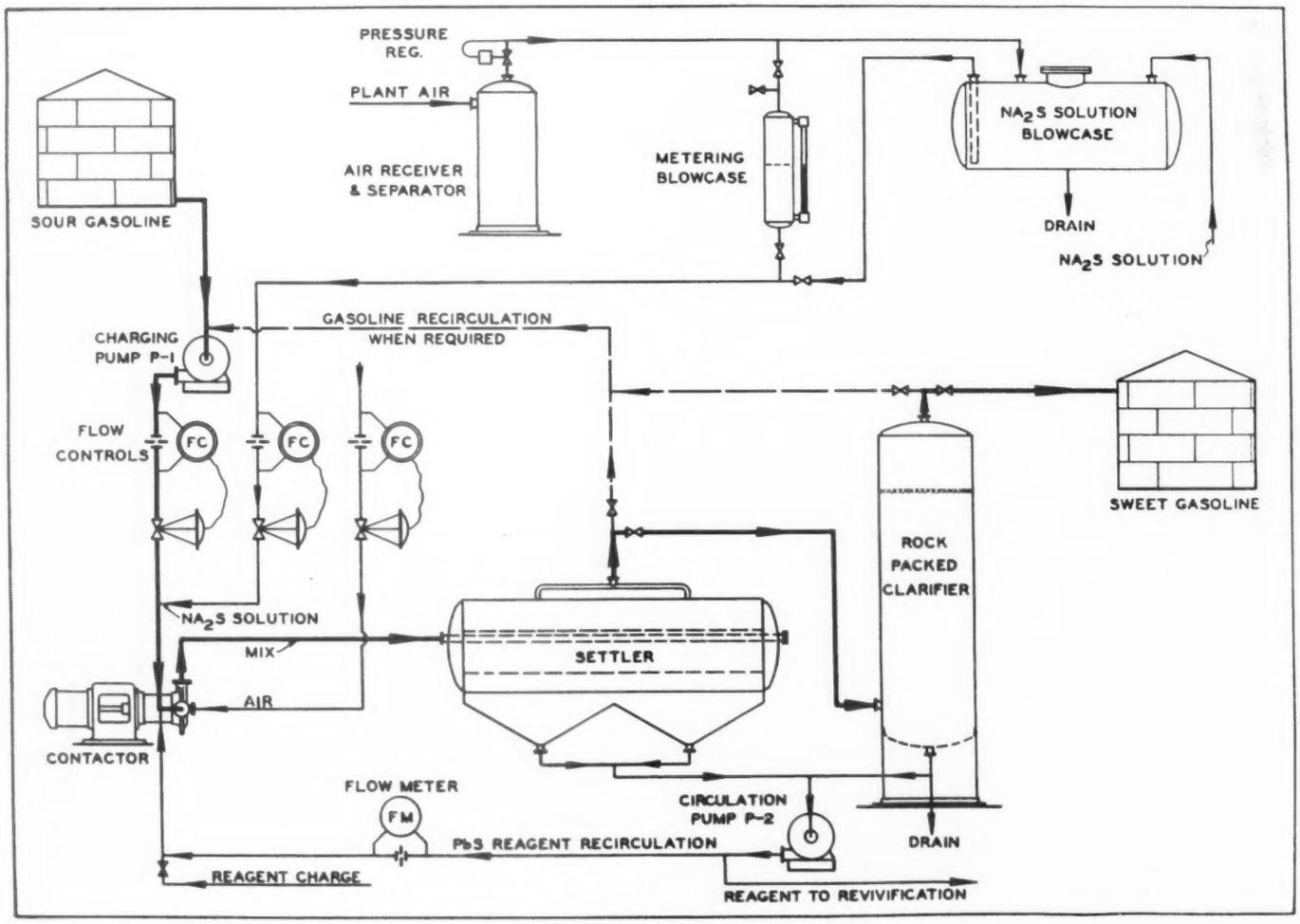
The flow diagram does not show the three small tanks normally used for storage of sodium plumbite and sodium sulfide solutions, and reagent preparation (or washing) respectively. Fresh PbS reagent is made by adding the required amount of sodium sulfide solution to sodium plumbite solution so that all of the lead is precipitated out of the latter.

II. Operating Results

Large scale commercial operation of the improved lead sulfide sweetening process over a period of six years has demonstrated the general practicability of the method for treating both straight-run and cracked gasoline and also heavier products. These operations have provided ample opportunity to obtain reliable data on yields, chemical consumption, and effects on quality of the finished products.

Following are results secured during normal commercial operation using the PbS process for sweetening sour cracked gasoline:

1. **Chemical consumption**—pounds per barrel of gasoline (1)
   The following figures represent maximum requirements:



A typical flowsheet of the PbS sweetening system

Facts BY SHARPLES *on*

treating pressure distillate

SHARPLES CENTRIFUGAL ACID TREATING ASSURES:

Higher yield of finished end point gasoline.
Higher anti-knock rating of finished gasoline.
Greatly reduced neutralization costs.
Reduction in re-run still corrosion.
Elimination of any necessity of re-running under vacuum.

In the process, distillate and acid are automatically accurately proportioned, mechanically mixed and centrifugally separated after a reaction period of controlled duration.
That's the story in a nut-shell.
Does it interest you to know that the experience of two generations of Sharpleses in centrifugal engineering is available to you?

THE SHARPLES SPECIALTY COMPANY · PHILADELPHIA · PA.

Per cent mercaptan sulfur (2)	0.01	0.02	0.03
Sodium Sulfide	0.03	0.06	0.09
Litharge	0.0077	0.0085	0.01
Caustic Soda (3)	0.0077	0.0085	0.01

(1) For cracked gasoline and straight-run gasoline containing a lower percentage of mercaptan sulfur than indicated chemical consumption is always less.
(2) Borgstrom & Reid Method.
(3) Net consumption of caustic after credit is given for diluted caustic withdrawn from the system.

2. **General**
(1) Low octane losses.
(2) Color drop—nil to three points depending upon crude source, endpoint of gasoline, etc.
(3) Satisfactory color stability.
(4) Volumetric loss—not measurable with the exception of that due to evaporation in tankage.
(5) Sulfur—no increase during sweetening.
(6) Copper corrosion test—unchanged or improved.

3. **Use of Air for Sweetening**
Considerable interest has been displayed relative to the effect of process air additions during sweetening on the gum content and gum stability of the finished gasoline. It has been found that, within the limits of error of the determination, the amount of air added is so small that its effect on the gum content and stability is negligible.

III. Advantages of Stratco PbS Process

From a study of the available data on sweetening stocks of similar quality in plants where the PbS process replaced the conventional doctor method with efficient revivification procedure, it was indicated that the advantages of the PbS process were approximately as follows:

1. Decreased chemical costs—of the order of 50% or more.
2. Decreased octane loss—of the order of 0.5 points CFRMM.
3. Decreased color loss.
4. Decreased volumetric loss—as high as 1.5%.
5. Decreased utilities cost—principally due to eliminating regeneration of blackstrap, and avoiding water washing of sweetened gasolines.

Unit costs for chemicals will vary considerably between individual plants, as will figures for stock value, octane value, and utilities but it will be apparent that the potential savings to be realized represent a considerable sum for all plants.

A considerable number of cracked and straight run gasolines, commercially produced from a wide variety of crude sources, has been examined recently. For purposes of comparison these stocks have been sweetened by the conventional doctor and PbS processes, and in a number of cases, by other lesser known sweetening methods. A study of the results and review of the processes involved indicated that many of the following advantages can be realized by PbS sweetening as compared to other methods.

1. Minimum chemical costs
2. Minimum octane degradation
3. Best color retention
4. Eliminates the use of sulfur
5. Negligible losses of gasoline
6. No corrosive chemicals used
7. Minimum labor and utilities cost
8. Continuous and automatic operation
9. Unusually low plant cost
10. Inexpensive conversion of doctor plants.

A more detailed discussion of some of the major advantages of the PbS process follows:

1. **Eliminates the use of sulfur.** No free sulfur is required in carrying out the PbS treating operation; therefore, the sulfur content of the gasoline is not increased in the slightest during the sweetening procedure. For this reason the difficulties with regulation of the sulfur feed are removed, and the possibility of producing a corrosive (bad copper strip test) gasoline is eliminated. Furthermore, recent experimental work has shown that the presence of free sulfur, even in amounts that may not be detected readily in the usual determinations, affect adversely both inhibitor susceptibility and tetra ethyl lead requirements. It is known that reports on this subject by several investigators are in preparation and will be published shortly.

2. **Losses—Gasoline and Reagent.** The losses of finished gasoline by the PbS process are negligible by reason of the type of operation (closed system, etc.) and the fact that no emulsions are formed during the operation, and that it is not necessary to regenerate blackstrap. No lead in any form is consumed chemically in the PbS process. All lead losses are mechanical.

3. **Minimum Labor and Utility Costs.** The process requires no more labor than a conventional doctor sweetening operation. With experienced operators and with automatic controls, the labor and supervision required usually are materially less than in a doctor plant.

The cost of all utilities required by the PbS process is decidedly less than for conventional doctor sweetening. No air is required for external revivification, and very little steam. In contra-distinction the cost of steam and air required for blackstrap regeneration has often been found to be nearly equivalent to the cost of chemicals required in the sweetening operation. Furthermore, in substantially all sweetening processes, the sweetened gasoline is washed with water or chemical solutions prior to leaving the plant. This final wash is eliminated in the PbS process.

4. **Continuous and Automatic Operation.** The operation of the PbS process is continuous and automatic. Consequently the consumption of chemicals can be readily held to a minimum, and chemical control is reduced to the utmost simplicity.

5. **Plant Costs—Conversion of Existing Doctor Plants.** It will be noted from the flow sheet that the design of plants utilizing the PbS process is extremely simple and that existing doctor plants can be converted to the process cheaply and without difficulty. In practically all cases, most of the equipment can be utilized in making the conversion.

IV. Mechanism of Reactions

In conclusion, the question of mechanism of the PbS sweetening reaction has arisen many times. It appears that there are three schools of thought on the subject. Briefly, they are:

1. **Variations of the well-known doctor treating reaction.** The basic reactions of the conventional doctor treating process and blackstrap revivification are well known. Drs. Morrell and Faragher (2) have published several articles of outstanding merit in this connection, presenting data to indicate that PbS treating is a special case of doctor treating. Ott and Reid (3) have a different hypothesis, considering sodium plumbite as lead hydroxide and show experimental data indicating that both basic and neutral lead mercaptides may be formed. These may be oxidized either with sodium sulfide or free sulfur to form the disulfides.

2. **Catalytic Oxidation.** Wendt and Diggs (4) in an early article assigned a catalytic role to the suspension of PbS in caustic, the lead sulfide not entering the reaction but acting as a catalyst to promote the oxidation reaction
$4RSH + O_2 \rightarrow 2R_2S_2 + 2H_2O$.

3. **Adsorption.** Wendt and Diggs in a later article, and Slagle and Reid (5) in a recent publication, reported that PbS was capable of adsorbing more than 25 per cent by weight of mercaptans.

However, though all of the various hypotheses explain some of the findings noted during several years of commercial operation, none of them individually explains all of the phenomena. It is believed that an explanation of the mechanism of the reaction probably lies in a summation of all three. The important fact is that the use of the Stratco PbS process, employing substantially balanced reagent, on sour gasoline will insure the production of a sweet gasoline of highest quality at an extremely low overall cost.

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Canadian Bureau of Mines Issues Results of Fuel Oil Analyses

AN ANALYSIS of fuel oil samples, collected in the vicinity of Ottawa, Canada, has just been announced by the Canadian Bureau of Mines. The 14 samples used in the analysis included 4 samples of stove oil and ten samples of light furnace oil, and were obtained by P. V. Rosewarne and H. McD. Chantler of the Fuel Research laboratories from ten companies.

The analysis is similar to the Co-operative Fuel Research Motor-Gasoline Survey conducted during the winter of 1935 by the United States Bureau of Mines. This gasoline tested in this survey was obtained from service station pumps in 18 marketing areas.

In analyzing the Canadian fuel oil samples, determinations were made by methods generally accepted and approved by the oil industry.

The flash point was determined in the Pensky-Martens closed tester, according to A.S.T.M. method D 93-22.

The water and sediment content was determined by centrifuging, in accordance with the A.S.T.M. method D 96-35.

The oxygen bomb method, using 600 pounds pressure, according to the A.S.T.M. method D 129-34, was used to determine the sulfur content, and acidity was determined as a mineral acid neutralization number by the A.S.T.M. method D 188-27 T, method C.

Pour point, distillation range, viscosity, carbon residue, corrosion, and color number were determined by accepted A.S.T.M. methods.

The specific gravity was calculated at room temperature by the chainomatic specific gravity balance, and the equivalent specific gravity at 60°F., determined from the oil tables of the U. S. Bureau of Standards, Circular No. 154.

The B.t.u. per pound and the B.t.u. per Imperial gallon were calculated from the specific gravity of 60°F., according to the U. U. Bureau of Standards, Miscellaneous Publication No. 97.

The aniline point in the Canadian analyses was determined by heating a mixture of equal parts by volume of freshly distilled aniline and the test sample in a jacketed test tube to a clear solution and noting the temperature at which turbidity appeared as the mixture was cooled.

The diesel index number was calculated from the aniline point and the A.P.I. gravity by the following formula:

$$\text{Diesel Index Number} = \frac{(\text{API gravity at 60 deg.F.}) \times \text{aniline point in deg. F.}}{100}$$

The grade number was obtained by comparing the analysis of the sample with the grades specified by the Canadian Government Purchasing Standards Committee in their Specification No. 3-GP-2 for fuel oil.

The following tables show the analysis of the fuel oil samples sold in and around Ottawa.

Analysis of Stove Oils Sold in Ottawa

Sample Number	1	2	3	4
Usual Designation	Stove Oil†			
Retail price per 100 Imp. Gals. ....$	13.00	12.70	13.00	13.00
Flash point .....°F.	155	150	145	155
Water and sediment .....%	nil	nil	nil	nil
Sulfur .....%	0.12	0.05	0.09	0.05
Mineral Acid Neutralization No.	nil	nil	nil	nil
Pour Point* .....°F.	-35	5	-35	-40
Distillation Range:				
First drop .....°F.	375	358	368	368
10% .....°F.	409	420	410	405
20% .....°F.	419	439	420	417
50% .....°F.	444	500	443	443
70% .....°F.	565	554	458	462
90% .....°F.	499	618	487	497
End point .....°F.	548	665	546	543
Recovery .....%	99.0	99.0	99.0	99.0
Residue and Distillation loss ....%	1.0	1.0	1.0	1.0
Viscosity, Saybolt Universal seconds at .....100°F.	32	36	32	32
Carbon residue .....%	0.005	0.005	0.005	0.005
Specific gravity at 60°F.	0.819	0.819	0.818	0.819
Degrees A. P. I. at 60°F.	41.3	41.3	41.5	41.3
Btu. per pound (calculated)	19,790	19,790	19,800	19,790
Btu. per Imp. gallon (calculated) ..	162,100	162,100	162,000	162,100
Corrosion	no	no	no	no
Colour number (A. S. T. M.)	1	1	1	1
Aniline point .....°F.	149	170	149	149
Diesel Index number (calculated) ..	62	70	62	62
Grade Number (according to Spec. 3-GP-2)	1	2	1	1

*bl. = Pour point "below" temperature indicated.
†Samples 1, 3, and 4 correspond to No. 1 grade of U. S. fuel oil. Sample 2 corresponds to No. 2 grade of U. S. fuel oil.

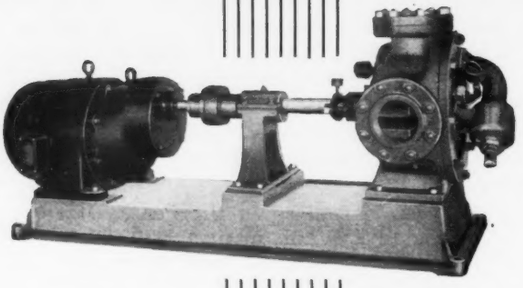
Analysis of Light Furnace Oils Sold in Ottawa

Sample Number	5	6	7	8	9	10	11	12	13	14
Usual Designation	Light Furnace Oil*									
Retail price per 100 Imp. Gals. .....$	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50
Flash point .....°F.	170	165	160	150	165	165	170	155	165	160
Water and sediment .....%	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil
Sulfur .....%	0.23	0.13	0.22	0.22	0.22	0.22	0.18	.0.23	0.18	0.14
Mineral Acid Neutralization Number	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil
Pour point† .....°F.	bl.-70	-10	-70	bl.-70	-70	bl.-70	bl.-70	-10	bl.-70	bl.-70
Distillation Range:										
First drop .....°F.	389	393	389	378	384	391	384	361	389	377
10% .....°F.	427	440	428	428	430	428	427	429	432	417
20% .....°F.	440	450	440	440	441	441	440	442	443	430
50% .....°F.	475	474	476	474	475	476	475	475	474	464
70% .....°F.	508	499	503	509	508	508	507	501	509	497
90% .....°F.	566	549	565	563	565	564	560	541	563	561
End point .....°F.	622	619	625	622	631	633	629	610	631	638
Recovery .....%	99.0	98.0	99.0	99.0	98.5	99.0	99.0	99.0	99.0	99.0
Residue and Distillation loss .....%	1.0	2.0	1.0	1.0	1.5	1.0	1.0	1.0	1.0	1.0
Viscosity, Saybolt Universal seconds at 100°F.	35	33	34	34	34	34	33	33	34	33
Carbon residue .....%	0.005	0.005	0.02	0.02	0.02	0.02	0.02	0.005	0.01	0.01
Specific gravity at 60°F.	0.855	0.839	0.853	0.855	0.854	0.855	0.855	0.833	0.855	0.852
Degrees A. P. I. at 60°F.	34.0	37.2	34.4	34.0	34.2	34.0	34.0	38.4	34.0	34.6
Btu. per pound (calculated)	19,560	19,660	19,570	19,560	19,570	19,560	19,560	19,700	19,560	19,580
Btu. per Imp Gal. (calculated)	167,200	165,000	166,900	167,200	167,000	167,200	167,200	164,100	167,200	166,800
Corrosion	no	no	no	no	no	no	no	no	no	no
Colour number (A. S. T. M.)	2½	2	2½	2½	2½	3	2½	1½	2½	2½
Aniline point .....°F.	135	144	137	135	136	136	135	135	135	135
Diesel Index number (calculated)	46	54	47	46	47	46	46	52	46	46
Grade Number (according to Spec. 3-GP-2)	2	2	2	2	2	2	2	2	2	2

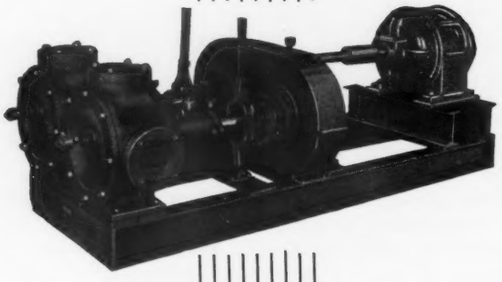
†bl. = Pour point "below" temperature indicated.
*The samples tested correspond to No. 3 grade of U. S. fuel oil.

VIKING offers a PUMP To Fit Every Pumping Job

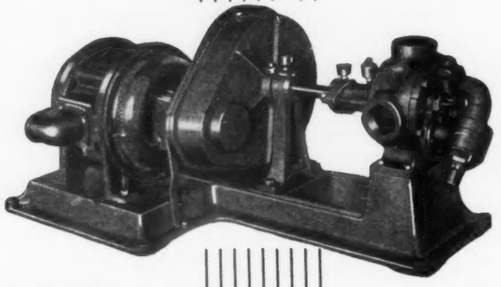
Large or small, "tough" or "simple", regardless of how your pumping assignments are classified you'll find a Viking Pump that can do the job "better". The "Straitline" Unit is the "last word" in compactness and genuine operating efficiency . . . ideally suited for Bulk and Blending Plants . . . available in 20 to 450 pump capacities.



Viking's big, sturdy Twin Units represent the finest pumps available for the industry . . . they have been designed and constructed especially for use in Bulk Stations, Refineries and Blending Plants. They have been tried and proven for the HIGH EFFICIENCY and LOW OPERATING COST. Models obtainable with each pump handling from 50 to 1050 GPM.



Viking Standard Motor Gear Driven Pumps, offer compact, self-contained pumping units in all capacities, with motor and pump mounted on same base. This type of pump has proven very popular because of its extreme flexibility. Here is another Viking "favorite" of the industry . . . investigate its many advanced features and let it solve your difficult pumping problems.



Write Viking today for complete information . . we'll send you detailed bulletins and price list.

VIKING PUMP CO.

Cedar Falls, Iowa

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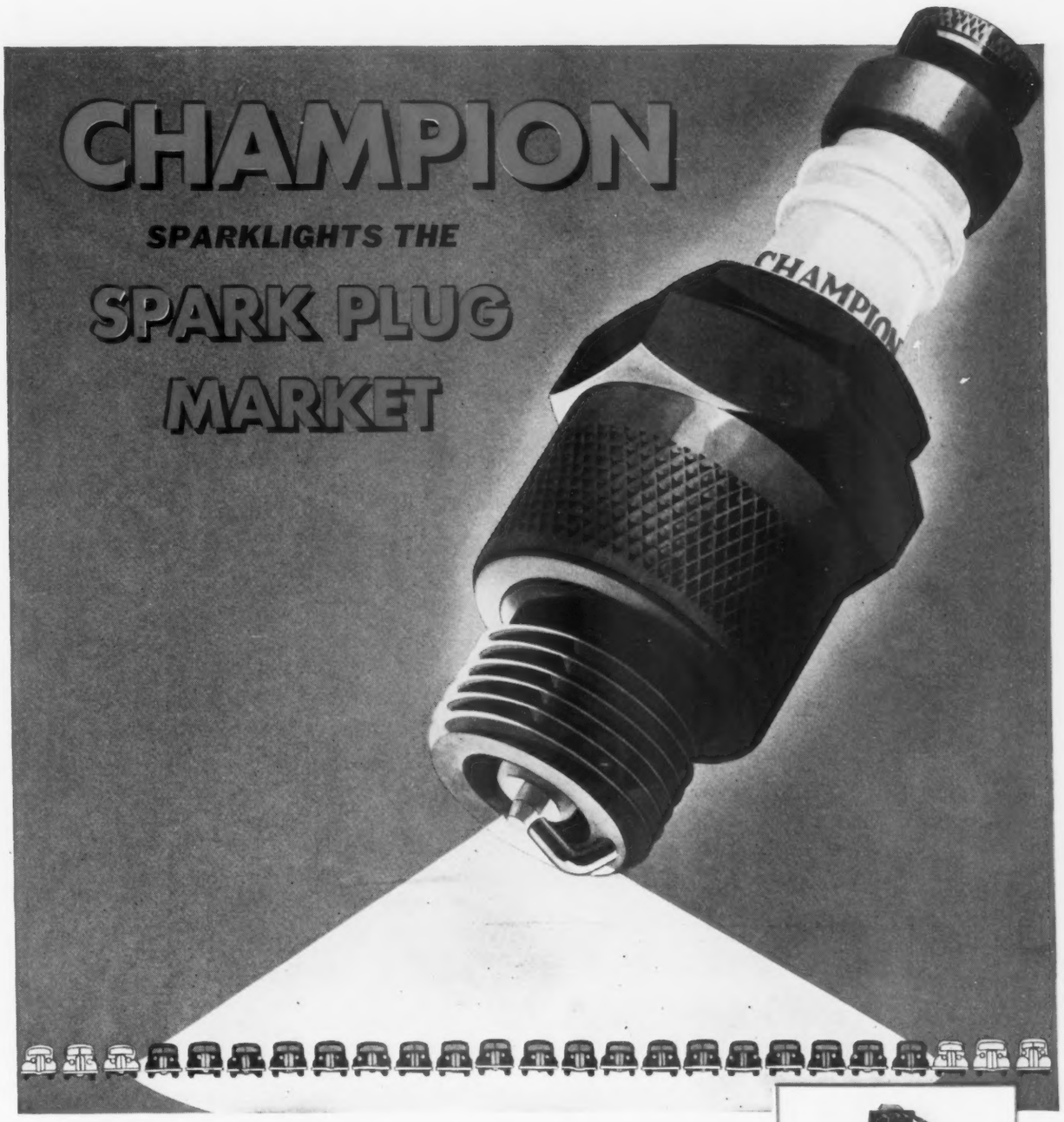

19 of the 25 makes of automobiles are factory-equipped with Champion Spark Plugs

Here is a replacement market where the profit opportunities for the wide-awake dealer are almost unlimited . . . All spark plugs, including even Champions, should be replaced after 10,000 miles to insure peak performance and economy. It is the natural assumption that the owner will replace his spark plugs with the same make the factory engineers chose. This natural market for Champions is the lion's share of the spark plug market . . . The extent of this replacement market is almost unbelievable. When you consider that Champion has factory-equipped the majority of all automobiles, trucks, tractors, marine and stationary engines for years, you can readily see that your profit opportunities are unlimited . . . Revitalize your spark plug sales. Stock and push Champions for bigger and better profits.

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He brings to the position of head of an important oil company the experience of a chemical engineer. After graduating in chemistry and engineering at Allegheny college and serving in the air corps during the war, Mr. Zehrung joined The Pennzoil Co. as chemist in 1919. He has advanced through the positions of assistant superintendent of the refinery, director of sales engineering, manager of lubricating oil sales, general manager and vice president. He is an active member of various oil and scientific associations.